

# **SDMS US EPA REGION V -1**

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DOCUMENTS.**

163094

SITE ASSESSMENT  
FOR  
INTERNATIONAL HARVESTER/DUTCH BOY SITE  
CHICAGO, COOK COUNTY, ILLINOIS  
TDD: T05-9505-011  
PAN: EIL0607VBA

Part 2 of 2

August 25, 1995

Prepared for:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Emergency and Enforcement Response Branch  
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Date: 8/25/95

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Date: 8/25/95

Approved by: Thomas Kouris  
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Date: 8/25/95

ecology and environment, inc.

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International Specialists in the Environment

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## 1. INTRODUCTION

The United States Environmental Protection Agency (U.S. EPA) tasked the Ecology and Environment, Inc. (E & E), Technical Assistance Team (TAT) to assist the U.S. EPA On-Scene Coordinator (OSC) Paul Steadman in performing a site assessment (SA) of the Dutch Boy (DB) property, which is located at 12042 South Peoria Street, Chicago, Illinois, adjacent to the International Harvester (IH) site. TAT was requested under Technical Direction Document (TDD) T05-9505-011 to prepare and implement a Health and Safety Plan; compile background information; conduct a site assessment; perform soil sampling; document on-site activities; and evaluate threats to human health and the environment at the site.

## **2. SITE BACKGROUND**

### **2.1 SITE DESCRIPTION**

The DB site is an abandoned and unfenced parcel of land that abuts the east side of the IH site at 12042 South Peoria Street (Figure 2-1) (41°40'29" N, 87°38'29" W). Industrial and warehouse buildings border the DB property to the north and south. Vacant lots that appear to have been abandoned by various businesses border the DB property to the east (Figure 2-2). The site is located in the northeast portion of Section 29 of Township 37 North, Range 14 East.

### **2.2 SITE HISTORY**

The DB site is a former lead-based paint manufacturing facility. The three-story mill building, which housed the facility, was partially demolished in 1983, leaving a concrete and steel skeleton that is still present on site.

NL Industries, Inc. (NL) owned and operated a lead-based paint manufacturing facility at the DB site from 1937 until 1976. The facility was then sold to ECT, Inc. in 1976. The name of the company was subsequently changed to Dutch Boy, Inc. In 1980, the name was changed to ARTRA Group, Inc., and the site was conveyed to Goodwill Industries of Chicago, who subsequently transferred the property to John Heckens in 1982. The DB site was then sold to M & T Enterprises, Inc., which later deeded the property to LaVon Tarr Enterprises. The last owner to operate a lead-based paint manufacturing facility at the DB site was the ARTRA Group, Inc.

The site has been inactive since 1980. In 1983, wrecking and salvaging operations began at the DB site, under the direction of the Wrip Wrecking Company. In 1986, these operations were terminated when the Illinois Department of Public Health (IDPH) received notice of five cases of lead poisoning that were attributed to a combination of DB site conditions and wrecking operations. Three of the five cases were children, who were apparently playing on site, and at least one case involved a scavenger on site. The source of the lead poisoning was attributed to solid lead particles, which

collected inside of and on the building structure, becoming airborne when disturbed by wrecking operations. Asbestos was also detected inside the building structure.

In June 1986, the Illinois Environmental Protection Agency (IEPA) initiated Phase I of an immediate removal action at the DB site. This consisted of removal and disposal of surficial solids, both suspected and known to contain lead and/or asbestos.

In November 1986, Phase II of the removal action began at the DB site. The Phase II removal action included the sampling, analysis, and disposal of liquids, solids, and sludges contained in all aboveground and underground storage tanks (USTs). Also included in the Phase II removal action was the disposal of all existing process/production equipment and debris located in and around the three-story structure. Baghouses, mixing tanks, screw conveyers, hoppers, and masonry rubble were removed and disposed of. In addition, the Phase II removal action included the removal and disposal of asbestos in and around the building. The freestanding walls of the building and all outbuildings were demolished at that time.

In 1987, Phase III began, which involved the determination of soil contamination and assessment of the structural integrity of the USTs. Results of Phase III showed that 130 cubic yards of soil on and adjacent to the site contained greater than 5 milligrams per liter (mg/L) of extraction procedure (EP) toxicity lead and approximately 140 cubic yards of soil containing greater than 1% lead. According to the IEPA, these soils were not removed. The Phase III investigation also concluded that the USTs on site were structurally sound and did not leak.

In 1991, E & E's Field Investigation Team (FIT) conducted an off-site reconnaissance of the DB site. No evidence of hazardous wastes were observed. Small piles of refuse were scattered throughout the site. The refuse appeared to be vegetation, furniture, clothes, and construction material.

In August 1993, U.S. EPA and TAT conducted a site assessment under TDD T05-9307-006 to address the possibility that piles of lead-contaminated soils still existed on site. The TAT site assessment concluded that piles of lead-contaminated soils were not present on site. No other hazards were observed by TAT at that time.





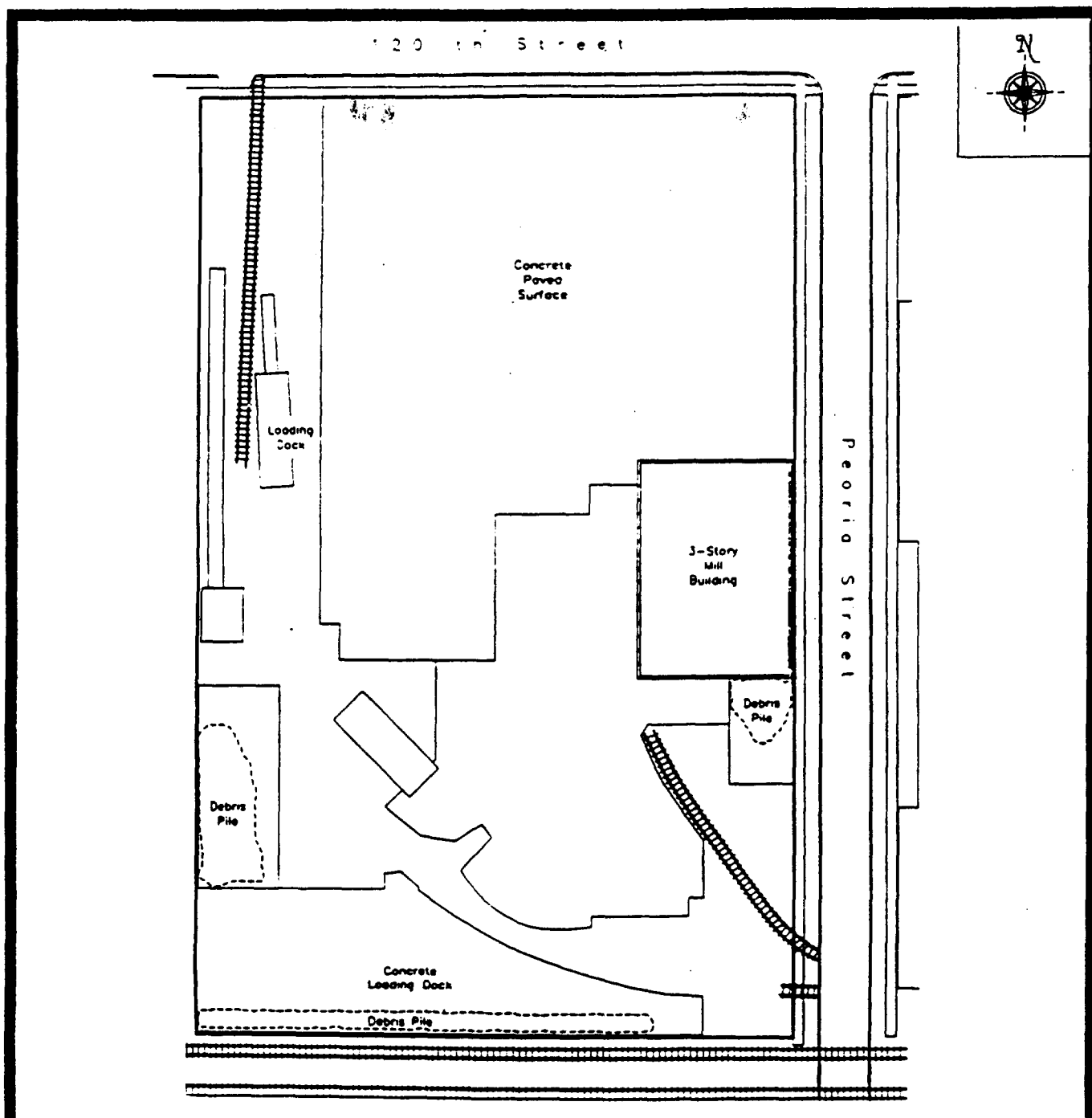
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Technical Assistance Team

Region V

111 W. Jackson Blvd., Chicago, Illinois 60604

TITLE	Site Location Map	FIGURE #	2-1
NO.	Dutch Boy	TEL	T05-9505-011
CITY	Chicago	STATE	Illinois
		SCALE	1:24,000
SOURCE	USGS 7.5 Minute Series (Topographic) Quadrangle: Blue Island, IL	DATE	1963
		REVISION	1973



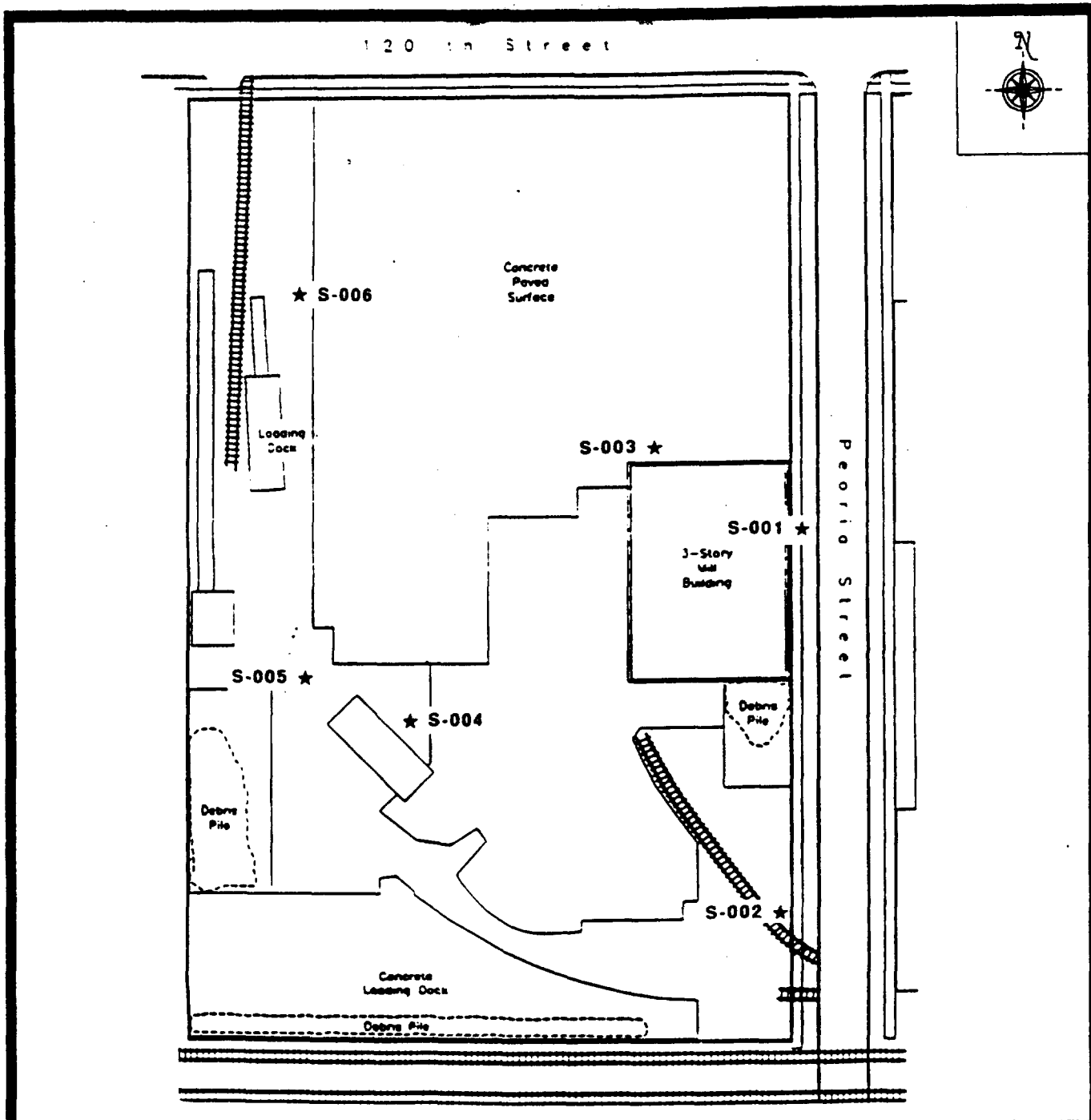
 <b>ecology and environment, inc.</b> <b>Technical Assistance Team</b> <b>Region V</b> 111 W. Jackson Blvd., Chicago, Illinois 60604			
TITLE	Site Features Map	FIGURE #	2-2
FOR	Dutch Boy	FIG. NO.	T05-9505-011
CITY	Chicago	STATE	Illinois
DATE	11/93	SCALE	Not Available
BY	Simon Hydro-Search Report	REVISION	

### 3. SITE ASSESSMENT

On June 8, 1995, at 0930 hours, TAT members Brigid Brooks and Patrick Zwilling met with OSC Steadman and Kelly Kennoy of Harza Environmental Services, Inc., at the DB property. From 1000 hours to 1100 hours, OSC Steadman, TAT, and Ms. Kennoy performed an initial site reconnaissance to determine sample locations. Previous sampling locations and results were discussed. During the reconnaissance TAT observed the only structure present on site, a three-story building frame surrounded by loading docks and concrete foundation pads. Vegetation was present throughout the unfenced site. Open holes and pits were observed around the property, which present a serious physical hazard. TAT also observed indications that vagrants were living on site.

Between 1130 hours and 1240 hours, TAT collected three 8-ounce soil samples using a disposable plastic trowel from six locations on site. Sample S-001 was collected from the east side of the building structure near a fire hydrant at a depth of 6 inches. Soil sample S-002 was collected from the southeast corner of the property at an approximate depth of 3 inches. Soil sample S-003 was collected from the north side of the building structure at a depth of 12 inches. Sample S-004 was collected from an area north of the former location of linseed oil tanks at a depth of 3 inches. Sample S-005 was collected from an area northwest of the linseed oil tanks at a depth of 8 inches. Soil sample S-006 was collected from the east side of the northernmost loading dock at a depth of 8 inches.

TAT completed soil sampling and departed the site at approximately 1245 hours. See Figure 3-1 for sample locations. TAT photodocumented all sampling events and locations (Appendix A). All sampling was conducted according to E & E standard operating procedures.



## Legend:

S-001 ★ = Sample Location



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Region V

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TITLE	Sample Location Map	SHEET #	3-1
DATE	Dutch Boy	TEL	T05-9505-011
CITY	Chicago	STATE	Illinois
PROJECT	Simon Hydro-Search Report - 11/93 Ecology and Environment, Inc.	SCALE	None
		DATE	8/95
		REVISION	

#### **4. ANALYTICAL RESULTS**

Soil samples S-001 through S-006 were analyzed for volatile organic compounds (VOCs) (Method 8260), semivolatile organic compounds (SVOCs) (Method SW-846 8270), organochlorine pesticides (Method SW-846 8081), polychlorinated biphenyls (PCBs) (Method SW-846 8081), total and reactive cyanide (Method 9010) and sulfide (Method 9030), priority pollutant metals (Method SW-846 3051/6010), and total petroleum oil (Method 418.1). Soil samples S-002 through S-006 were also analyzed for lead using the Toxicity Characteristic Leaching Procedure (TCLP), Method 1311. All soil samples were analyzed by Athena Analytical Laboratory of Chicago, Illinois, under TDD T05-9505-806, utilizing quality assurance (QA) level II guidance. A summary of the data analysis results is presented in Table 4-1. The analytical data have been validated by E & E's Quality Assurance/Quality Control (QA/QC) department and approved for use in this report. See Appendix B for analytical data results.

<p><b>Table 4-1</b></p> <p><b>ANALYTICAL DATA RESULTS</b></p> <p><b>DUTCH BOY</b></p> <p><b>CHICAGO, ILLINOIS</b></p> <p>(units = mg/kg unless otherwise indicated)</p>						
Parameter	Sample Number					
	S-001	S-002	S-003	S-004	S-005	S-006
Reactive Cyanide	U	U	U	U	U	U
Total Cyanide	U	U	U	U	U	U
Reactive Sulfide	U	U	U	U	U	U
Total Sulfide	14	U	U	U	U	U
Total Petroleum Oil	U	U	U	U	U	U
Pesticides	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
PCBs	<MDL	<MDL	0.222	0.516	<MDL	<MDL

Table 4-1 (Cont.)

**ANALYTICAL DATA RESULTS  
DUTCH BOY  
CHICAGO, ILLINOIS**

(units =  $\mu\text{g/kg}$  unless otherwise indicated)

Parameter	Sample Number					
	S-001	S-002	S-003	S-004	S-005	S-006
<b>SVOCs</b>						
Phenanthrene	953.3	788.0J	<MDL	455.2J	2,278J	926.3
Fluoranthene	1,121.7	1,239J	<MDL	958.8J	3,275J	1,314.5
Pyrene	1,331.7	1,343J	<MDL	877.1J	3,660J	1,422.3
Benzo(a)anthracene	705.2	755.8J	<MDL	530.3J	2,037J	740.2
Chrysene	805.8	838.8J	<MDL	551.2J	2,098J	798.6
bis(2-ethylhexyl)phthalate	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Benzo(b)fluoranthene	1,022.2	1,214J	<MDL	779.9J	2,719J	969.5
Benzo(k)fluoranthene	<MDL	<MDL	<MDL	<MDL	972.9J	<MDL
Ideno(1,2,3-cd)pyrene	621.5	627.8J	<MDL	415.8J	1,378J	513.4
Benzo(g,h,i)perylene	677.5	567.8J	<MDL	<MDL	1,207J	444.1
Benzo(a)pyrene	858.2	856.7J	<MDL	575.5J	2,073J	728.1
Anthracene	<MDL	<MDL	<MDL	<MDL	581.8J	<MDL
Di-n-butylphthalate	<MDL	<MDL	<MDL	<MDL	447.4J	<MDL
<b>VOCs</b>	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL

Table 4-1 (Cont.)						
ANALYTICAL DATA RESULTS DUTCH BOY CHICAGO, ILLINOIS						
(units = mg/kg unless otherwise indicated)						
Parameter	Sample Number					
	S-001	S-002	S-003	S-004	S-005	S-006
<b>Total RCRA Metals</b>						
Antimony	8.0	<MDL	<MDL	9.64	31.1	52.9
Arsenic	24.5J	20.4J	1.47J	26.7J	49.0J	16.0J
Beryllium	1.46	1.20	0.565	1.09	1.05	0.778
Cadmium	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Chromium	39.5	185	12.0	28.8	32.8	19.0
Copper	141	58.1	9.00	40.1	120	76.6
Lead	21,200	1,180	1,540	2,450	6,820	31,700
Nickel	31.0	15.3	6.71	19.3	26.7	22.7
Selenium	17.3J	4.68J	2.96J	0.81J	7.3J	9.1J
Silver	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Thallium	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Zinc	692	501	36.4	245	319	329
Mercury	0.312J	0.042J	0.096J	1.312J	0.25J	0.187J
<b>TCLP RCRA Metals (mg/L)</b>						
Lead	NA	3.41	2.46	3.70	10.9	351

Key:  
 PCBs = Polychlorinated Biphenyls.  
 SVOCs = Semivolatile Organic Compounds.  
 VOCs = Volatile Organic Compounds.  
 RCRA = Resource Conservation and Recovery Act.  
 U = Undetected.  
 <MDL = Less than Method Detection Limit.  
 NA = Not Analyzed.  
 J = Estimated quantity.

Source: Athena Analytical Laboratory, Chicago, IL, under analytical TDD T05-9505-806.



## 5. DISCUSSION OF POTENTIAL THREATS

Conditions at the DB site present an imminent and substantial endangerment to human health and the environment, based upon factors set forth in paragraph (b) (2) of Part 300.415 of the National Oil and Hazardous Substances Contingency Plan (NCP). The following conditions exist at the DB site:

- Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants:

Analytical results revealed lead-contaminated soil to be present at the DB site. Total lead was detected in on-site soils at concentrations ranging from 1,540 milligrams per kilogram (mg/kg) to 31,700 mg/kg. TCLP results revealed lead to be present at concentrations ranging from 2.46 milligrams per liter (mg/L) to 351 mg/L. TCLP lead concentrations detected in on-site soil samples exceed the regulatory limit of 5 mg/L for lead established by the Resource Conservation and Recovery Act (RCRA) under the Code of Federal Regulations (CFR) 261.21.

Lead dust poses both an inhalation and ingestion hazard and is considered a suspected carcinogen by the International Agency on Research for Cancer (IARC). Lead is a cumulative poison; therefore, long-term exposure to lower levels can result in a buildup in the body and more severe symptoms. Prolonged exposure to lead could result in kidney damage, anemia, and decreased fertility. Elevated lead exposure before and during pregnancy can cause birth defects. A potential exists for persons to come into direct contact with the lead-contaminated soil at the DB site due to the unrestricted access. Five cases of lead poisoning have been documented by IDPH and are attributed to the DB site. Observations made by TAT during the SA indicate vagrants may be residing on DB property.

- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

Analytical results have indicated the presence of lead in on-site soils at levels that greatly exceed the regulatory limit of 5 mg/L. Heavy rains present a potential for migration of lead-contaminated soils via runoff into storm sewers and road ditches. Dry weather conditions could lead to the migration of contaminants through airborne dust particulates. Lead is an inhalation and ingestion hazard. Prolonged exposure to lead may cause kidney failure, and depression of the central nervous system.

## 6. SUMMARY

U.S. EPA and TAT conducted an SA and performed soil sampling activities at the DB site on June 8, 1995. Analytical results of TAT-collected soil samples, as well as analytical results from previous IEPA removal activities, have indicated the presence of lead at levels that exceed the regulatory limit of 5 mg/L. Because the site is unsecured, and because lead is a cumulative poison that poses a serious inhalation hazard with documented acute and chronic health effects especially in children, TAT recommends that further action be taken at the DB site. Site access should be secured immediately via the installation of a fence around the contaminated areas. An extent of contamination study should be conducted to determine the extent of lead-contaminated soil present at the DB site.

**APPENDIX A**  
**SITE PHOTOGRAPHS**



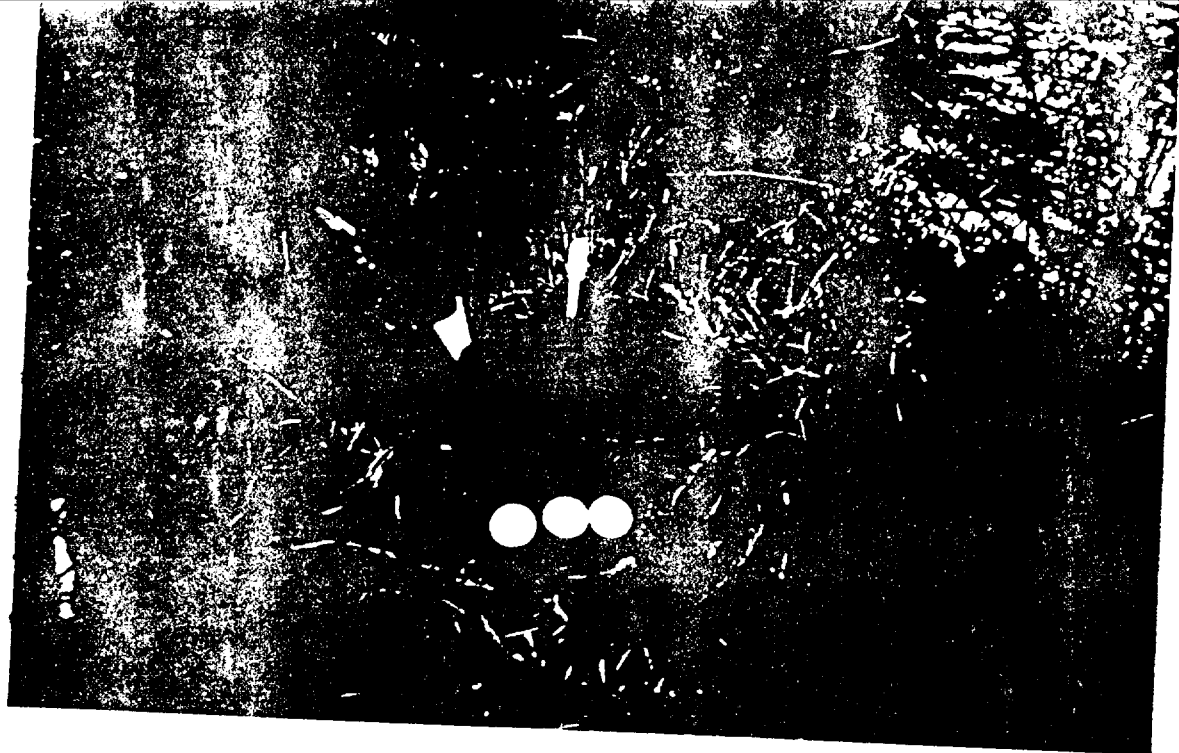
SITE NAME: DUTCH BOY  
 TDD #: T05-9505-011  
 DATE: JUNE 8, 1995  
 TIME: 1135 HOURS  
 DIRECTION: N/A  
 PHOTOGRAPHER: PATRICK ZWILLING

CAMERA: KODAK DISPOSABLE ONE USE  
 FILM: KODAK 100 ASA, 24 EXPOSURE  
 SUBJECT: SOIL SAMPLE LOCATION S-001, EAST SIDE  
 OF MILL BUILDING, 6-INCH DEPTH.



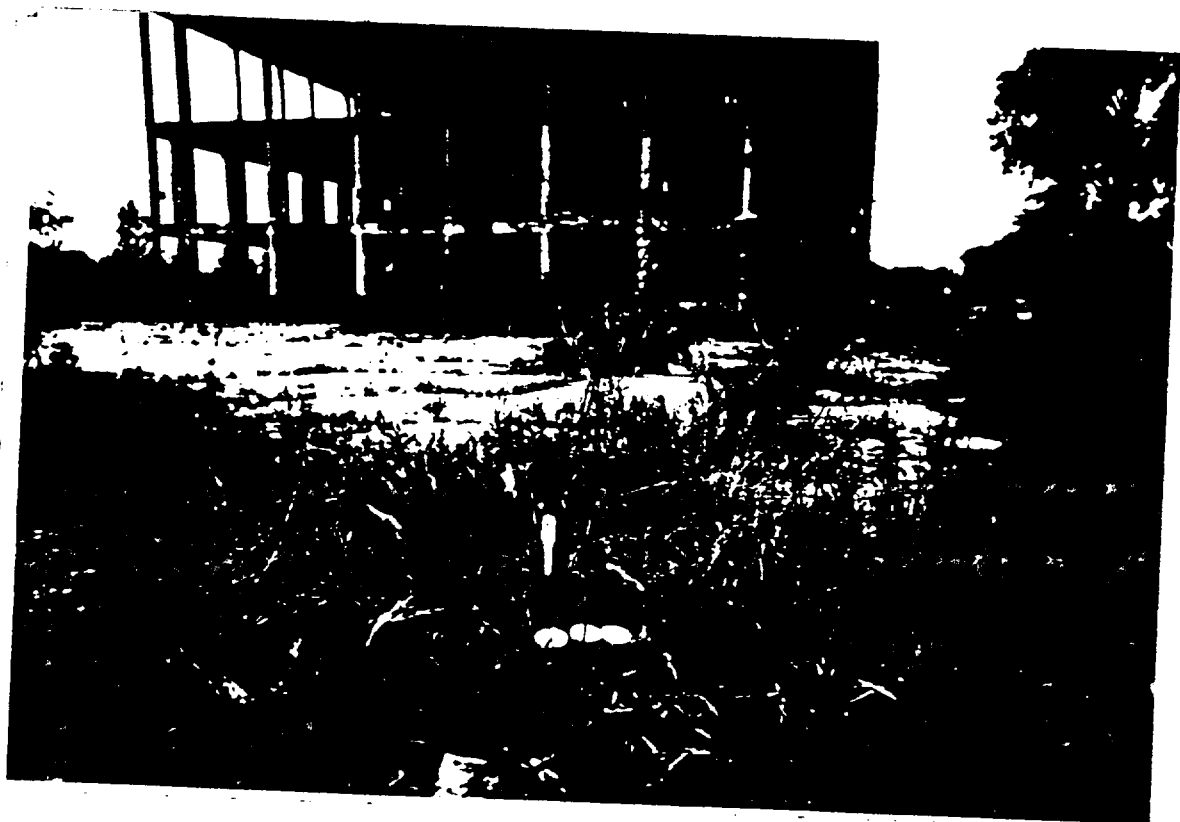
SITE NAME: DUTCH BOY  
 TDD #: T05-9505-011  
 DATE: JUNE 8, 1995  
 TIME: 1135 HOURS  
 DIRECTION: WEST  
 PHOTOGRAPHER: PATRICK ZWILLING

CAMERA: KODAK DISPOSABLE ONE USE  
 FILM: KODAK 100 ASA, 24 EXPOSURE  
 SUBJECT: PERSPECTIVE OF SOIL SAMPLE LOCATION S-001.



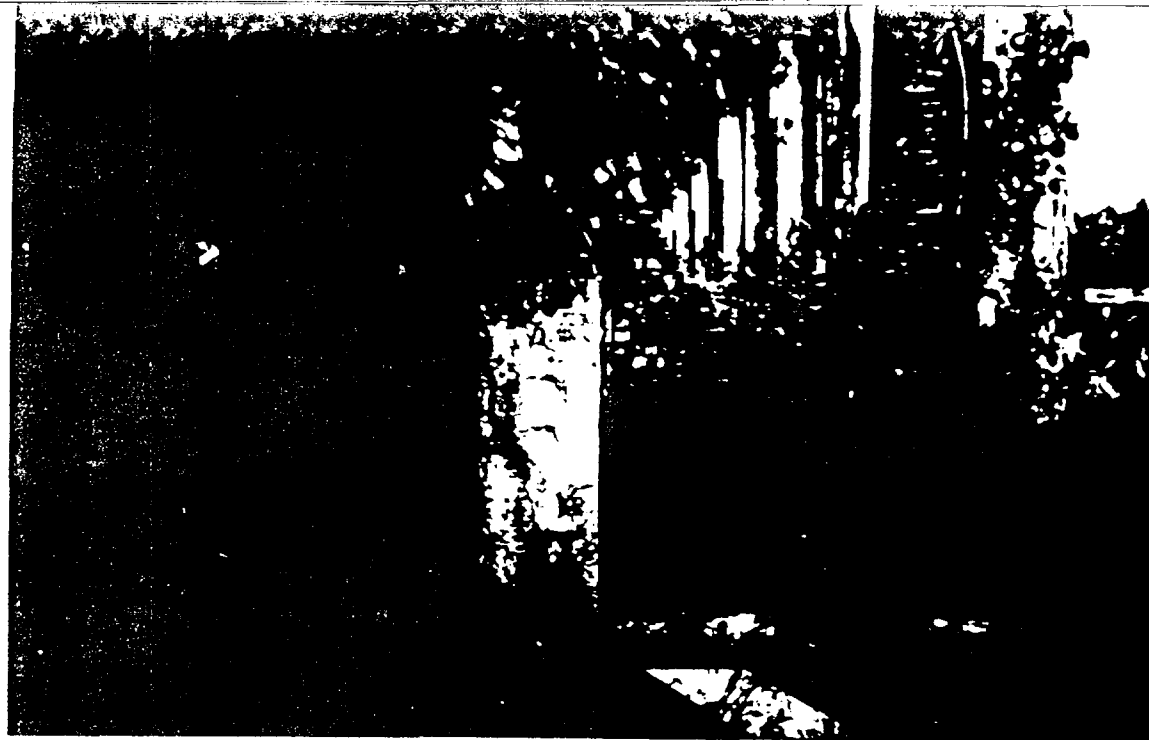
SITE NAME: DUTCH BOY  
 TDD #: T05-9505-011  
 DATE: JUNE 8, 1995  
 TIME: 1145 HOURS  
 DIRECTION: N/A  
 PHOTOGRAPHER: PATRICK ZWILLING

CAMERA: KODAK DISPOSABLE ONE USE  
 FILM: KODAK 100 ASA, 24 EXPOSURE  
 SUBJECT: SOIL SAMPLE LOCATION S-002, SOUTHEAST  
 CORNER OF PROPERTY, 3-INCH DEPTH.



SITE NAME: DUTCH BOY  
 TDD #: T05-9505-011  
 DATE: JUNE 8, 1995  
 TIME: 1145 HOURS  
 DIRECTION: NORTH  
 PHOTOGRAPHER: PATRICK ZWILLING

CAMERA: KODAK DISPOSABLE ONE USE  
 FILM: KODAK 100 ASA, 24 EXPOSURE  
 SUBJECT: PERSPECTIVE OF SOIL SAMPLE LOCATION S-002.



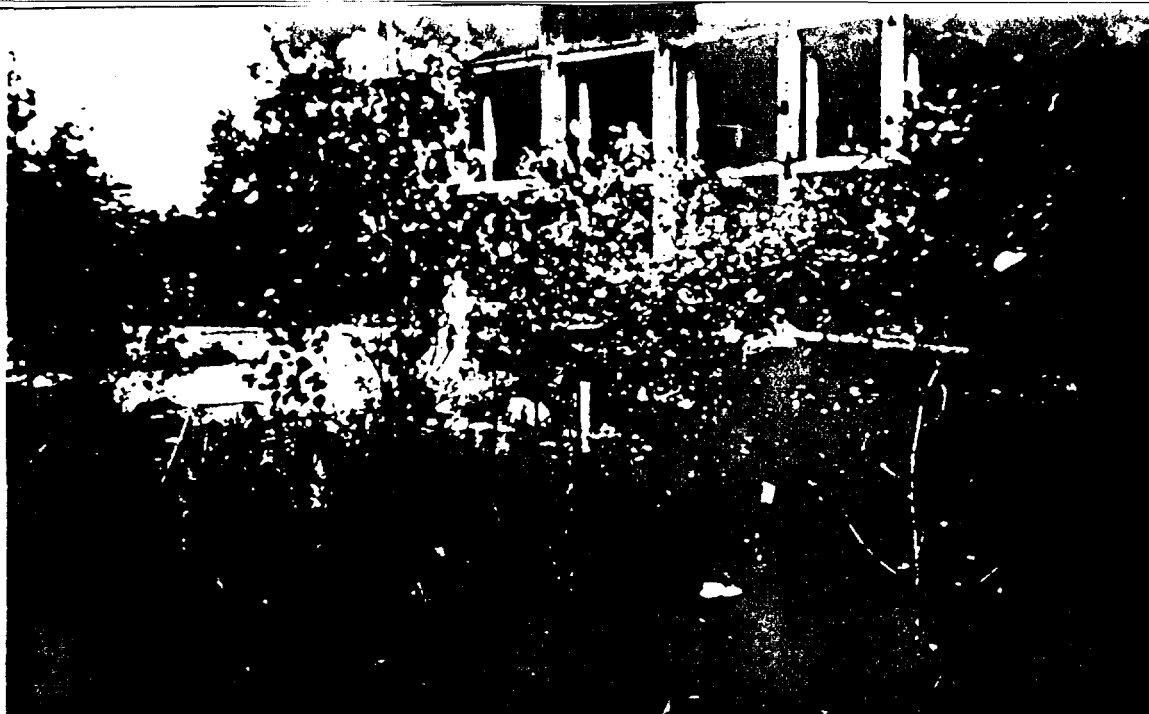
SITE NAME: DUTCH BOY  
 TDD #: T05-9505-011  
 DATE: JUNE 8, 1995  
 TIME: 1200 HOURS  
 DIRECTION: SOUTH  
 PHOTOGRAPHER: PATRICK ZWILLING

CAMERA: KODAK DISPOSABLE ONE USE  
 FILM: KODAK 100 ASA, 24 EXPOSURE  
 SUBJECT: SOIL SAMPLE LOCATION S-003, NORTH SIDE OF  
 MILL BUILDING, 12-INCH DEPTH.



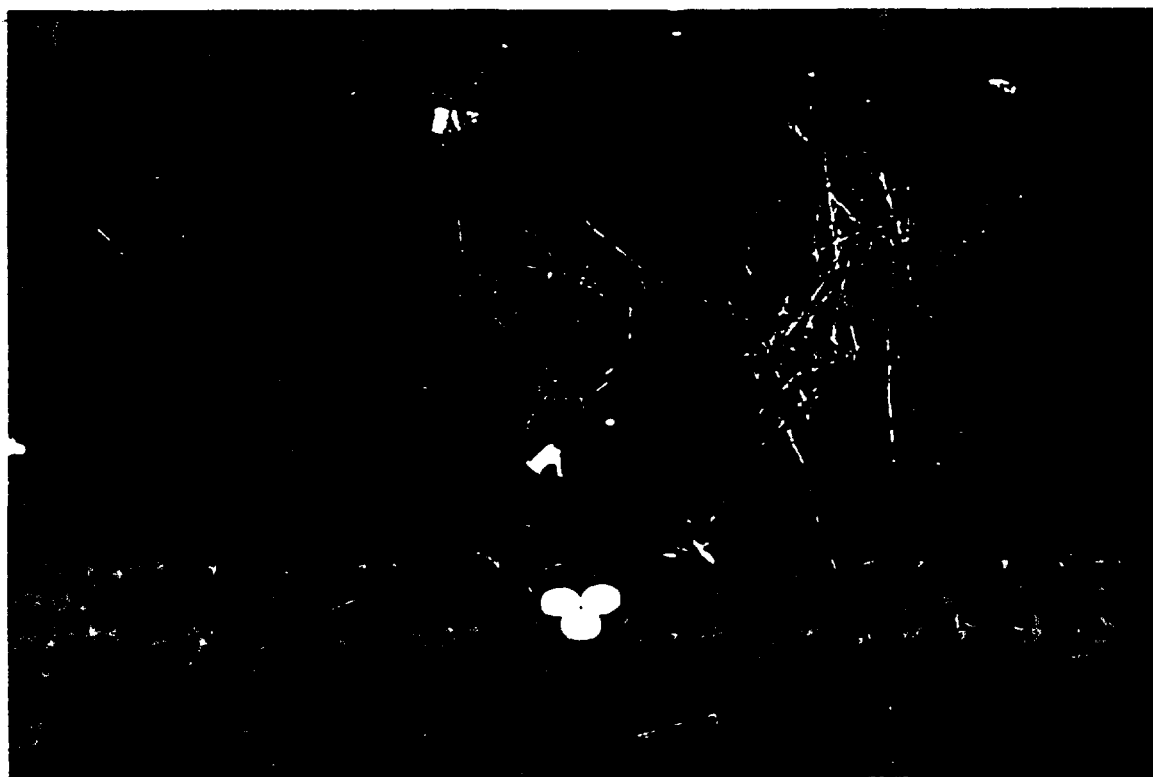
SITE NAME: DUTCH BOY  
 TDD #: T05-9505-011  
 DATE: JUNE 8, 1995  
 TIME: 1210 HOURS  
 DIRECTION: N/A  
 PHOTOGRAPHER: PATRICK ZWILLING

CAMERA: KODAK DISPOSABLE ONE USE  
 FILM: KODAK 100 ASA, 24 EXPOSURE  
 SUBJECT: SOIL SAMPLE LOCATION S-004, NORTH OF LINSEED  
 OIL TANKS, 3-INCH DEPTH.



SITE NAME: DUTCH BOY  
 TDD #: T05-9505-011  
 DATE: JUNE 8, 1995  
 TIME: 1210 HOURS  
 DIRECTION: NORTHEAST  
 PHOTOGRAPHER: PATRICK ZWILLING

CAMERA: KODAK DISPOSABLE ONE USE  
 FILM: KODAK 100 ASA, 24 EXPOSURE  
 SUBJECT: PERSPECTIVE OF SOIL SAMPLE LOCATION S-004.



SITE NAME: DUTCH BOY  
 TDD #: T05-9505-011  
 DATE: JUNE 8, 1995  
 TIME: 1240 HOURS  
 DIRECTION: N/A  
 PHOTOGRAPHER: PATRICK ZWILLING

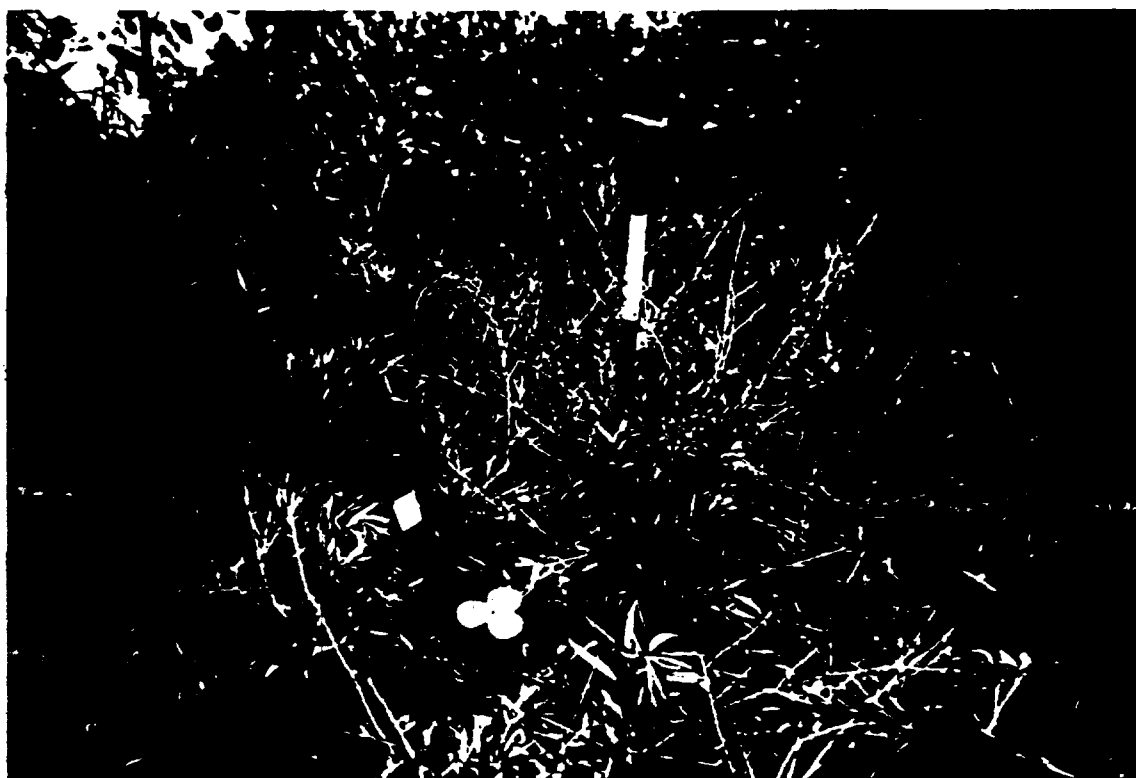
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 FILM: KODAK 100 ASA, 24 EXPOSURE  
 SUBJECT: SOIL SAMPLE LOCATIN S-005, NORTHWEST OF  
 LINSEED OIL TANKS, 8-INCH DEPTH.





SITE NAME: DUTCH BOY  
 TDD #: T05-9505-011  
 DATE: JUNE 8, 1995  
 TIME: 1240 HOURS  
 DIRECTION: SOUTHEAST  
 PHOTOGRAPHER: PATRICK ZWILLING

CAMERA: KODAK DISPOSABLE ONE USE  
 FILM: KODAK 100 ASA, 24 EXPOSURE  
 SUBJECT: PERSPECTIVE OF SOIL SAMPLE LOCATION S-005.



SITE NAME: DUTCH BOY  
 TDD #: T05-9505-011  
 DATE: JUNE 8, 1995  
 TIME: 1245 HOURS  
 DIRECTION: N/A

CAMERA: KODAK DISPOSABLE ONE USE  
 FILM: KODAK 100 ASA, 24 EXPOSURE  
 SUBJECT: SOIL SAMPLE LOCATION S-006, EAST OF NORTH  
 EDGE OF LOADING DOCK RAMP, 8-INCH DEPTH.



SITE NAME: DUTCH BOY  
TDD #: T05-9505-011  
DATE: JUNE 8, 1995  
TIME: 1245 HOURS  
DIRECTION: EAST  
PHOTOGRAPHER: PATRICK ZWILLING

CAMERA: KODAK DISPOSABLE ONE USE  
FILM: KODAK 100 ASA, 24 EXPOSURE  
SUBJECT: PERSPECTIVE OF SOIL SAMPLE LOCATION S-006.

E NAME: DUTCH BOY  
I #: T05-9505-011  
E: JUNE 8, 1995  
IE: 1245 HOURS  
ECTION: EAST  
TOGRAPHER: PATRICK ZWILLING

CAMERA: KODAK DISPOSABLE ONE USE  
FILM: KODAK 100 ASA, 24 EXPOSURE  
SUBJECT: PERSPECTIVE OF SOIL SAMPLE LOCATION S-006.

**APPENDIX B**  
**ANALYTICAL DATA PACKAGE**



# ecology and environment, inc.

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## MEMORANDUM

**DATE:** August 20, 1995

**TO:** John Sherrard, TAT Project Manager, E & E, Chicago, Illinois

**FROM:** David Hendren, TAT Analytical Services Manager, E & E, Chicago, Illinois

**THROUGH:** Mary J. Ripp, TAT QA Reports Manager, E & E, Chicago, Illinois

**SUBJECT:** Total and Reactive Cyanide Data Quality Assurance Review, International Harvester/Dutch Boy, Chicago, Cook County, Illinois

**REFERENCE:** Project TDD T05-9505-011      Analytical TDD T05-9505-806  
Project PAN EIL0607VBA      Analytical PAN EIL0607ACA

The data quality assurance (QA) review of 11 discrete soil samples, collected from the International Harvester/Dutch Boy site, is complete. The samples were collected on June 1 and 8, 1995, by the Technical Assistance Team (TAT) contractor, Ecology and Environment, Inc. (E & E). The samples were submitted to Athena Analytical Laboratory, Inc. (AAL), Chicago, Illinois. A subcontracted laboratory, American Environmental Analytical, Inc., Lincolnwood, Illinois, performed the analyses for cyanide. The laboratory analyses were performed according to the United States Environmental Protection Agency (U.S. EPA) Solid Waste-846 Method 9010.

### Sample Identification

<u>TAT Identification No.</u>	<u>Laboratory Identification No.</u>
S-1	50609062
S-2	50609063
S-3	50609064
S-4	50609065
S-5	50609066
S-001	50609067
S-002	50609068
S-003	50609069
S-004	50609070
S-005	50609071
S-006	50609072

Data Qualifications

I. Sample Holding Times: Acceptable

All samples were collected on June 1 and June 8, 1995, and analyzed on June 14, 1995. The samples were analyzed within the 14-day holding time limit.

II. Calibration: Acceptable

A six-point calibration was performed prior to analysis. The average response factor derived from the initial calibration yielded acceptable standard deviation. Prior to sample analysis a spiked sand sample was analyzed in duplicate and demonstrated acceptable recoveries.

III. Blanks: Acceptable

Method blanks were prepared and analyzed prior to sample analysis. Cyanide was not detected in the blanks.

IV. Overall Assessment of Data: Acceptable

This data evaluation is made on criteria established in the Office of Solid Waste and Emergency Response (OSWER) Directive 9360.4-01, "Quality Assurance/Quality Control Guidance for Removal Activities (1990)", Section 9.0, Generic Data Validation Procedures. Based on the data provided, the results are acceptable for use.



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**SUBJECT:** Total and Reactive Sulfide Data Quality Assurance Review, International Harvester/Dutch Boy, Chicago, Cook County, Illinois

**REFERENCE:** Project TDD T05-9505-011      Analytical TDD T05-9505-806  
Project PAN EIL0607VBA      Analytical PAN EIL0607ACA

The data quality assurance (QA) review of 11 discrete soil samples, collected from the International Harvester/Dutch Boy site, is complete. The samples were collected on June 1 and 8, 1995, by the Technical Assistance Team (TAT) contractor, Ecology and Environment, Inc. (E & E). The samples were submitted to Athena Analytical Laboratory, Inc. (AAL), Chicago, Illinois. A subcontracted laboratory, American Environmental Analytical, Inc., Lincolnwood, Illinois, performed the analyses for sulfide. The laboratory analyses were performed according to the United States Environmental Protection Agency (U.S. EPA) Solid Waste-846 Method 9030.

### Sample Identification

<u>TAT</u> <u>Identification No.</u>	<u>Laboratory</u> <u>Identification No.</u>
S-1	50609062
S-2	50609063
S-3	50609064
S-4	50609065
S-5	50609066
S-001	50609067
S-002	50609068
S-003	50609069
S-004	50609070
S-005	50609071
S-006	50609072

**Data Qualifications**

**I. Sample Holding Times: Acceptable**

All samples were collected on June 1 and June 8, 1995 and analyzed on June 14, 1995. The samples were analyzed within the 14-day holding time limit.

**II. Calibration: Acceptable**

A three-point calibration was performed prior to analysis. A correlation coefficient exceeding 0.995 was demonstrated. Prior to sample analysis a spiked sand sample was analyzed in duplicate and yielded acceptable recoveries.

**III. Blanks: Acceptable**

Method blanks were prepared and analyzed prior to sample analysis. Sulfide was not detected in the blanks.

**IV. Overall Assessment of Data: Acceptable**

This data evaluation is made on criteria established in the Office of Solid Waste and Emergency Response (OSWER) Directive 9360.4-01, "Quality Assurance/Quality Control Guidance for Removal Activities (1990)", Section 9.0, Generic Data Validation Procedures. Based on the data provided, the results are acceptable for use.



# ecology and environment, inc.

International Specialists in the Environment

111 West Jackson Boulevard  
Chicago, Illinois 60604  
Tel: (312) 663-9415, Fax: (312) 663-0791

## MEMORANDUM

**DATE:** August 20, 1995

**TO:** John Sherrard, TAT Project Manager, E & E, Chicago, Illinois

**FROM:** David Hendren, TAT Analytical Services Manager, E & E, Chicago, Illinois

**THROUGH:** Mary J. Ripp, TAT QA Reports Manager, E & E, Chicago, Illinois

**SUBJECT:** Data Quality Assurance Review for Total Recoverable Petroleum Hydrocarbons and Total Recoverable Oil and Grease, International Harvester/Dutch Boy, Chicago, Cook County, Illinois

**REFERENCE:** Project TDD T05-9505-011      Analytical TDD T05-9505-806  
Project PAN EIL0607VBA      Analytical PAN EIL0607ACA

The data quality assurance (QA) review of 11 discrete soil samples, collected from the International Harvester/Dutch Boy site, is complete. The samples were collected on June 1 and 8, 1995, by the Technical Assistance Team (TAT) contractor, Ecology and Environment, Inc. (E & E). The samples were submitted to Athena Analytical Laboratory, Inc. (AAL), Chicago, Illinois. A subcontracted laboratory, American Environmental Analytical, Inc., Lincolnwood, Illinois, performed the analyses. The laboratory analyses were performed according to the United States Environmental Protection Agency (U.S. EPA) method 418.1. Only sample S-1 was subjected to analysis for oil and grease following method 413.1.

### Sample Identification

<u>TAT</u> <u>Identification No.</u>	<u>Laboratory</u> <u>Identification No.</u>
S-1	50609062
S-2	50609063
S-3	50609064
S-4	50609065
S-5	50609066
S-001	50609067
S-002	50609068
S-003	50609069
S-004	50609070
S-005	50609071
S-006	50609072



## Data Qualifications

### I. Sample Holding Times: Acceptable

All samples were collected on June 1 and June 8, 1995. Samples were analyzed on June 15, 1995. The samples were analyzed within the 14-day holding time limit.

### II. Calibration: Acceptable

Prior to sample analysis a spiked sand sample was analyzed in duplicate and yielded acceptable recoveries for both analyses.

### III. Blanks: Acceptable

Method blanks were prepared and analyzed prior to sample analysis. Blanks for both analyses were free of contamination.

### IV. Overall Assessment of Data: Acceptable

This data evaluation is made on criteria established in the Office of Solid Waste and Emergency Response (OSWER) Directive 9360.4-01, "Quality Assurance/Quality Control Guidance for Removal Activities (1990)", Section 9.0, Generic Data Validation Procedures. Based on the data provided, the results are acceptable for use.

**ATHENA**  
**ANALYTICAL**  
**LABORATORY, INC.**



5609 West Bryn Mawr

Suite 201

Chicago, Illinois 60631

PHONE 312-693-5030

FAX 312-693-5783

**To:** Ecology and Environmental, Inc.  
6777 Engle Road  
Cleveland, OH 44130  
Attention: Emily S. Landis

**Sampled:** 6/8/95  
**Received:** 6/9/95  
**Extracted:** 6/15/95  
**Analyzed:** 6/15/95  
**Reported:** 6/16/95  
**Matrix:** SOIL

**Project Number:** ZT3051  
**Project Name:** T05-9505-806  
**P.O. Number:** N/A

**AAL #:** AA08611  
**Client #:** S-001 Fire hydrant - east side

**AAL COC Number:** 1475

<u>Analyte*</u>	<u>EPA Method</u>	<u>Detection Limit (mg/Kg)</u>	<u>Result (mg/Kg)</u>
Reactive Cyanide	9010	0.5	U
Total Cyanide	9010	0.5	U
Reactive Sulfide	9030	4	U
Total Sulfide	9030	4	14
Total Petroleum Hydrocarbons	418.1	10	U

\* Analyses performed by American Analytical Laboratory

Reviewed By: ch

Carol So Chow  
Carol So Chow  
Laboratory Director

**ATHENA**  
**ANALYTICAL**  
**LABORATORY, INC.**



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PHONE 312-693-8030

FAX 312-693-8753

**To:** Ecology and Environmental, Inc.  
6777 Engle Road  
Cleveland, OH 44130  
Attention: Emily S. Landis

**Sampled:** 6/8/95  
**Received:** 6/9/95  
**Extracted:** 6/15/95  
**Analyzed:** 6/15/95  
**Reported:** 6/16/95  
**Matrix:** SOIL

**Project Number:** ZT3051  
**Project Name:** T05-9505-806  
**P.O. Number:** N/A

**AAL #:** AA08612  
**Client #:** S-002 SE corner of property

**AAL COC Number:** 1475

<u>Analyte*</u>	<u>EPA Method</u>	<u>Detection Limit (mg/Kg)</u>	<u>Result (mg/Kg)</u>
Reactive Cyanide	9010	0.5	U
Total Cyanide	9010	0.5	U
Reactive Sulfide	9030	4	U
Total Sulfide	9030	4	U
Total Petroleum Hydrocarbons	418.1	10	U

\* Analyses performed by American Analytical Laboratory

Reviewed By: ch

Carol So Chow  
Carol So Chow  
Laboratory Director

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6777 Engle Road  
Cleveland, OH 44130  
Attention: Emily S. Landis

**Sampled:** 6/8/95  
**Received:** 6/9/95  
**Extracted:** 6/15/95  
**Analyzed:** 6/15/95  
**Reported:** 6/16/95  
**Matrix:** SOIL

**Project Number:** ZT3051  
**Project Name:** T05-9505-806  
**P.O. Number:** N/A

**AAL #:** AA08613  
**Client #:** S-003 North side of building

**AAL COC Number:** 1475

<u>Analyte*</u>	<u>EPA Method</u>	<u>Detection Limit (mg/Kg)</u>	<u>Result (mg/Kg)</u>
Reactive Cyanide	9010	0.5	U
Total Cyanide	9010	0.5	U
Reactive Sulfide	9030	4	U
Total Sulfide	9030	4	U
Total Petroleum Hydrocarbons	418.1	10	U

\* Analyses performed by American Analytical Laboratory

Reviewed By:                     

Carol So Chow  
Carol So Chow  
Laboratory Director

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**To:** Ecology and Environmental, Inc.  
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Attention: Emily S. Landis

**Sampled:** 6/8/95  
**Received:** 6/9/95  
**Extracted:** 6/15/95  
**Analyzed:** 6/15/95  
**Reported:** 6/16/95  
**Matrix:** SOIL

**Project Number:** ZT3051  
**Project Name:** T05-9505-806  
**P.O. Number:** N/A

**AAL #:** AA08614  
**Client #:** S-004 North of linseed oil tanks

**AAL COC Number:** 1475

<u>Analyte*</u>	<u>EPA Method</u>	<u>Detection Limit (mg/Kg)</u>	<u>Result (mg/Kg)</u>
Reactive Cyanide	9010	0.5	U
Total Cyanide	9010	0.5	U
Reactive Sulfide	9030	4	U
Total Sulfide	9030	4	U
Total Petroleum Hydrocarbons	418.1	10	U

\* Analyses performed by American Analytical Laboratory

Reviewed By: ch

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Attention: Emily S. Landis

**Sampled:** 6/8/95  
**Received:** 6/9/95  
**Extracted:** 6/15/95  
**Analyzed:** 6/15/95  
**Reported:** 6/16/95  
**Matrix:** SOIL

**Project Number:** ZT3051  
**Project Name:** T05-9505-806  
**P.O. Number:** N/A

**AAL #:** AA08615  
**Client #:** S-005 NW of linseed oil tanks

**AAL COC Number:** 1475

<b>Analyte*</b>	<b>EPA Method</b>	<b>Detection Limit (mg/Kg)</b>	<b>Result (mg/Kg)</b>
Reactive Cyanide	9010	0.5	U
Total Cyanide	9010	0.5	U
Reactive Sulfide	9030	4	U
Total Sulfide	9030	4	U
Total Petroleum Hydrocarbons	418.1	10	U

\* Analyses performed by American Analytical Laboratory

Reviewed By: ch

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Carol So Chow  
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**Sampled:** 6/8/95  
**Received:** 6/9/95  
**Extracted:** 6/15/95  
**Analyzed:** 6/15/95  
**Reported:** 6/16/95  
**Matrix:** SOIL

**Project Number:** ZT3051  
**Project Name:** T05-9505-806  
**P.O. Number:** N/A


**AAL #:** AA08616  
**Client #:** S-006 East of loading ramp

**AAL COC Number:** 1475

<u>Analyte*</u>	<u>EPA Method</u>	<u>Detection Limit (mg/Kg)</u>	<u>Result (mg/Kg)</u>
Reactive Cyanide	9010	0.5	U
Total Cyanide	9010	0.5	U
Reactive Sulfide	9030	4	U
Total Sulfide	9030	4	U
Total Petroleum Hydrocarbons	418.1	10	U

\* Analyses performed by American Analytical Laboratory

Reviewed By: 

  
Carol So Chow  
Laboratory Director



# ecology and environment, inc.

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International Specialists in the Environment

## M E M O R A N D U M

DATE: August 2, 1995

TO: John Sherrard, TAT Project Manager, E & E, Chicago, Illinois

FROM: Emily S. Landis, TAT Geochemist, E & E, Cleveland, Ohio

THROUGH: Anne A. Busher, ATATL, E & E, Cleveland, Ohio  
David Hendren, TAT Analytical Services Manager, E & E, Chicago, Illinois  
Mary J. Ripp, TAT QA Reports Manager, E & E, Chicago, Illinois

SUBJECT: Priority Pollutant List Pesticides and Polychlorinated Biphenyls (PCBs) Data Quality Assurance Review, International Harvester/Dutch Boy, Chicago, Cook County, Illinois

REFERENCE: Project TDD T05-9505-011 Analytical TDD T05-9505-806  
Project PAN EIL0607VBA Analytical PAN EIL0607ACA

The data quality assurance (QA) review of 11 discrete soil samples, collected from the International Harvester/Dutch Boy site, is complete. The samples were collected on June 1 and 8, 1995, by the Technical Assistance Team (TAT) contractor, Ecology and Environment, Inc. (E & E). The samples were submitted to Athena Analytical Laboratory, Inc. (AAL), Chicago, Illinois, for analysis. The laboratory analyses were performed according to the United States Environmental Protection Agency (U.S. EPA) Solid Waste-846 Method 8080/8081 for the determination of organochlorine pesticides and PCBs. Sample results were reported on a wet-weight basis.

### Sample Identification

<u>TAT</u> <u>Identification No.</u>	<u>Laboratory</u> <u>Identification No.</u>
S-1	AA08582
S-2	AA08583
S-3	AA08584
S-4	AA08585
S-5	AA08586
S-001	AA08611
S-002	AA08612
S-003	AA08613
S-004	AA08614
S-005	AA08615
S-006	AA08616



## Data Qualifications

### I. Sample Holding Time: Acceptable

Sample extractions were made June 15 and 20, 1995, within the 14-day holding time limit for soils. The samples were analyzed by capillary-column gas chromatography with an electron capture detector (GC/ECD) June 21, 1995, which was within the 40-day holding time limit from the extraction date.

### II. Instrument Performance: Acceptable

Peaks on the standard chromatograms appeared to be adequately separated. The surrogate compounds' retention time shifts were less than 0.3%, as required for capillary column gas chromatography.

### III. Initial and Continuing Calibration Verification: Acceptable

All five Aroclors were analyzed at five concentrations on June 8, 1995. The percent relative standard deviations (%RSDs) of the calibration factors were less than or equal to 10% for the initial linearity check. The continuing calibration for each Aroclor of interest was analyzed daily. The daily calibration checks were equal to or less than 15% RSD on the quantitation column and less than 20% RSD on the confirmation column, as required.

### IV. Error Determination: Precision and Bias Not Determined

Sample S-5 was spiked with six pesticide compounds. Percent recoveries were within limits except dichloro-diphenyl-trichloroethane (DDT) and aldrin. No action can be taken based on only two matrix spike sample results. Recoveries for PCB spikes were not reported because the data and backup were accidentally erased by a computer service technician.

### V. Blanks: Acceptable

Method blanks were prepared with the samples, and analyzed on the same instrument. All pesticide and PCB concentrations were below the practical quantitation limits (PQLs) in all the blanks.

### V. Compound Identification: Acceptable

Aroclors 1260 (sample S-004) and 1254 (sample S-003) were positively identified using the characteristic patterns; dual-column analysis confirmed compound identifications.

### VI. Compound Detection Limits: Acceptable

The reported detection limits included adjustments to account for the initial sample mass and dilutions required for analysis.

### VII. Surrogate Recoveries: Qualified

Percent recoveries of the surrogate compound, decachlorobiphenyl (DCB) were within acceptable limits for the method blank. The laboratory flagged positive results for samples S-004 and S-005 as estimated quantities because each had DCB percent recovery lower than the control limit.

VIII. Overall Assessment of Data: Acceptable

This data evaluation is based on criteria established in the Office of Solid Waste and Emergency Response Directive 9360.4-01, Quality Assurance/Quality Control Guidance for Removal Activities, (1990). Based on the data provided, the results are acceptable for use with the qualification noted for S-004 and S-005.

Data Validation Qualifiers

- J - The associated numerical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control limits were not met.

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To: Ecology and Environment, Inc.  
6777 Engle Road  
Cleveland, Ohio 44130  
Attention: Emily S. Landis

Report Date: 07/30/95

Date Received: 06/09/95

Analysis Date: 06/22/95

Method: SW-846 8080

Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-001	AA08611		
a-BHC		0.1	< Stated MDL
g-BHC(Lindane)		0.1	< Stated MDL
b-BHC		0.1	< Stated MDL
Heptachlor		0.1	< Stated MDL
d-BHC		0.1	< Stated MDL
Aldrin		0.1	< Stated MDL
Heptachlor Epoxide		0.1	< Stated MDL
Endosulfan		0.1	< Stated MDL
4'4'-DDE		0.1	< Stated MDL
Dieldrin		0.1	< Stated MDL
Endrin		0.1	< Stated MDL
4'4'-DDD		0.1	< Stated MDL
Endosulfan II		0.1	< Stated MDL
4'4'-DDT		0.1	< Stated MDL
Endrin Aldehyde		0.1	< Stated MDL
Endosulfan Sulfate		0.1	< Stated MDL
Methoxychlor		0.1	< Stated MDL
Endrin Ketone		0.1	< Stated MDL
Aroclor-1016		0.1	< Stated MDL

Analyst's Initials: AL

Reviewed by: SL

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-001	AA08611		
Aroclor-1221		0.1	< Stated MDL
Aroclor-1232		0.1	< Stated MDL
Aroclor-1242		0.1	< Stated MDL
Aroclor-1248		0.1	< Stated MDL
Aroclor-1254		0.1	< Stated MDL
Aroclor-1260		0.1	< Stated MDL

Analyst's Initials: SL Reviewed by: SLCarol So Chow  
Laboratory Director

**ATHENA**  
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**To:** Ecology and Environment, Inc.  
6777 Engle Road  
Cleveland, Ohio 44130  
Attention: Emily S. Landis

**Report Date:** 07/30/95

**Date Received:** 06/09/95

**Analysis Date:** 06/22/95

**Method:** SW-846 8080

**Matrix:** SOIL

**AAL COC Number:** 01475

**Project Number:** ZT3051

**Project Name:** T05-9505-806

**P.O. Number:** NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-002	AA08612		
a-BHC		0.1	< Stated MDL
g-BHC(Lindane)		0.1	< Stated MDL
b-BHC		0.1	< Stated MDL
Heptachlor		0.1	< Stated MDL
d-BHC		0.1	< Stated MDL
Aldrin		0.1	< Stated MDL
Heptachlor Epoxide		0.1	< Stated MDL
Endosulfan		0.1	< Stated MDL
4'4'-DDE		0.1	< Stated MDL
Dieldrin		0.1	< Stated MDL
Endrin		0.1	< Stated MDL
4'4'-DDD		0.1	< Stated MDL
Endosulfan II		0.1	< Stated MDL
4'4'-DDT		0.1	< Stated MDL
Endrin Aldehyde		0.1	< Stated MDL
Endosulfan Sulfate		0.1	< Stated MDL
Methoxychlor		0.1	< Stated MDL
Endrin Ketone		0.1	< Stated MDL
Aroclor-1016		0.1	< Stated MDL

Analyst's Initials: AS

Reviewed by: ch

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-002	AA08612		
Aroclor-1221		0.1	< Stated MDL
Aroclor-1232		0.1	< Stated MDL
Aroclor-1242		0.1	< Stated MDL
Aroclor-1248		0.1	< Stated MDL
Aroclor-1254		0.1	< Stated MDL
Aroclor-1260		0.1	< Stated MDL

Analyst's Initials: AB Reviewed by: h

Carol So Chow  
Carol So Chow  
Laboratory Director



**ATHENA**  
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To: Ecology and Environment, Inc.  
6777 Engle Road  
Cleveland, Ohio 44130  
Attention: Emily S. Landis

Report Date: 07/30/95

Date Received: 06/09/95

Analysis Date: 06/22/95

Method: SW-846 8080

Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-003	AA08613		
a-BHC		0.1	< Stated MDL
g-BHC(Lindane)		0.1	< Stated MDL
b-BHC		0.1	< Stated MDL
Heptachlor		0.1	< Stated MDL
d-BHC		0.1	< Stated MDL
Aldrin		0.1	< Stated MDL
Heptachlor Epoxide		0.1	< Stated MDL
Endosulfan		0.1	< Stated MDL
4'4'-DDE		0.1	< Stated MDL
Dieldrin		0.1	< Stated MDL
Endrin		0.1	< Stated MDL
4'4'-DDD		0.1	< Stated MDL
Endosulfan II		0.1	< Stated MDL
4'4'-DDT		0.1	< Stated MDL
Endrin Aldehyde		0.1	< Stated MDL
Endosulfan Sulfate		0.1	< Stated MDL
Methoxychlor		0.1	< Stated MDL
Endrin Ketone		0.1	< Stated MDL
Aroclor-1016		0.1	< Stated MDL

Analyst's Initials: AG

Reviewed by: Sh

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-003	AA08613		
Aroclor-1221		0.1	< Stated MDL
Aroclor-1232		0.1	< Stated MDL
Aroclor-1242		0.1	< Stated MDL
Aroclor-1248		0.1	< Stated MDL
Aroclor-1254		0.1	0.222
Aroclor-1260		0.1	< Stated MDL

Analyst's Initials: Al Reviewed by: ch

Carol So Chow  
Carol So Chow  
Laboratory Director





**ATHENA**  
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To: Ecology and Environment, Inc.  
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Cleveland, Ohio 44130  
Attention: Emily S. Landis

Report Date: 07/30/95

Date Received: 06/09/95

Analysis Date: 06/22/95

Method: SW-846 8080

Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-004	AA08614		
a-BHC		0.1	< Stated MDL
g-BHC(Lindane)		0.1	< Stated MDL
b-BHC		0.1	< Stated MDL
Heptachlor		0.1	< Stated MDL
d-BHC		0.1	< Stated MDL
Aldrin		0.1	< Stated MDL
Heptachlor Epoxide		0.1	< Stated MDL
Endosulfan		0.1	< Stated MDL
4'4'-DDE		0.1	< Stated MDL
Dieldrin		0.1	< Stated MDL
Endrin		0.1	< Stated MDL
4'4'-DDD		0.1	< Stated MDL
Endosulfan II		0.1	< Stated MDL
4'4'-DDT		0.1	< Stated MDL
Endrin Aldehyde		0.1	< Stated MDL
Endosulfan Sulfate		0.1	< Stated MDL
Methoxychlor		0.1	< Stated MDL
Endrin Ketone		0.1	< Stated MDL
Aroclor-1016		0.1	< Stated MDL

Analyst's Initials: AG

Reviewed by: ch

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-004	AA08614		
Aroclor-1221		0.1	< Stated MDL
Aroclor-1232		0.1	< Stated MDL
Aroclor-1242		0.1	< Stated MDL
Aroclor-1248		0.1	< Stated MDL
Aroclor-1254		0.1	< Stated MDL
Aroclor-1260		0.1	0.516 J

Analyst's Initials: AS Reviewed by: AS

J flagged because surrogate recovery was outside limits.

Carol So Chow  
Laboratory Director

**ATHENA**  
**ANALYTICAL**  
**LABORATORY, INC.**



8609 West Bryn Mawr

Suite 201

Chicago, Illinois 60631

PHONE 312-693-8030

FAX 312-693-8783

To: Ecology and Environment, Inc.  
6777 Engle Road  
Cleveland, Ohio 44130  
Attention: Emily S. Landis

Report Date: 07/31/95

Date Received: 06/09/95

Analysis Date: 06/22/95

Method: SW-846 8080

Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-005	AA08615		
a-BHC		0.1	< Stated MDL
g-BHC(Lindane)		0.1	< Stated MDL
b-BHC		0.1	< Stated MDL
Heptachlor		0.1	< Stated MDL
d-BHC		0.1	< Stated MDL
Aldrin		0.1	< Stated MDL
Heptachlor Epoxide		0.1	< Stated MDL
Endosulfan		0.1	< Stated MDL
4'4'-DDE		0.1	< Stated MDL
Dieldrin		0.1	< Stated MDL
Endrin		0.1	< Stated MDL
4'4'-DDD		0.1	< Stated MDL
Endosulfan II		0.1	< Stated MDL
4'4'-DDT		0.1	< Stated MDL
Endrin Aldehyde		0.1	< Stated MDL
Endosulfan Sulfate		0.1	< Stated MDL
Methoxychlor		0.1	< Stated MDL
Endrin Ketone		0.1	< Stated MDL
Aroclor-1016		0.1	< Stated MDL

Analyst's Initials: AL Reviewed by: sh

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-005	AA08615		
Aroclor-1221		0.1	< Stated MDL
Aroclor-1232		0.1	< Stated MDL
Aroclor-1242		0.1	< Stated MDL
Aroclor-1248		0.1	< Stated MDL
Aroclor-1254		0.1	< Stated MDL
Aroclor-1260		0.1	< Stated MDL

Analyst's Initials: AG Reviewed by: L

All results should be flagged UJ, because surrogate recovery was outside control limits.

Carol So ChowCarol So Chow  
Laboratory Director

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Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-006	AA08616		
a-BHC		0.1	< Stated MDL
g-BHC(Lindane)		0.1	< Stated MDL
b-BHC		0.1	< Stated MDL
Heptachlor		0.1	< Stated MDL
d-BHC		0.1	< Stated MDL
Aldrin		0.1	< Stated MDL
Heptachlor Epoxide		0.1	< Stated MDL
Endosulfan		0.1	< Stated MDL
4'4'-DDE		0.1	< Stated MDL
Dieldrin		0.1	< Stated MDL
Endrin		0.1	< Stated MDL
4'4'-DDD		0.1	< Stated MDL
Endosulfan II		0.1	< Stated MDL
4'4'-DDT		0.1	< Stated MDL
Endrin Aldehyde		0.1	< Stated MDL
Endosulfan Sulfate		0.1	< Stated MDL
Methoxychlor		0.1	< Stated MDL
Endrin Ketone		0.1	< Stated MDL
Aroclor-1016		0.1	< Stated MDL

Analyst's Initials: Al Reviewed by: ih

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-006	AA08616		
Aroclor-1221		0.1	< Stated MDL
Aroclor-1232		0.1	< Stated MDL
Aroclor-1242		0.1	< Stated MDL
Aroclor-1248		0.1	< Stated MDL
Aroclor-1254		0.1	< Stated MDL
Aroclor-1260		0.1	< Stated MDL

Analyst's Initials: AG Reviewed by: chCarol So Chow

Carol So Chow

Laboratory Director





# ecology and environment, inc.

International Specialists in the Environment

111 West Jackson Boulevard  
Chicago, Illinois 60604  
Tel: (312) 663-9415. Fax: (312) 663-0791

## MEMORANDUM

DATE: July 26, 1995

TO: John Sherrard, TAT Project Manager, E & E, Chicago, Illinois

FROM: Emily S. Landis, TAT Geochemist, E & E, Cleveland, Ohio

THROUGH: Anne A. Busher, ATATL, E & E, Cleveland, Ohio  
David Hendren, TAT Analytical Services Manager, E & E, Chicago, Illinois  
Mary J. Ripp, TAT QA Reports Manager, E & E, Chicago, Illinois

SUBJECT: Priority Pollutant List Semivolatile Organic Analysis (SVOA) Data Quality Assurance Review, International Harvester/Dutch Boy, Chicago, Cook County, Illinois

REFERENCE: Project TDD T05-9505-011 Analytical TDD T05-9505-806  
Project PAN EIL0607VBA Analytical PAN EIL0607ACA

The data quality assurance (QA) review of 11 discrete soil samples, collected from the International Harvester/Dutch Boy site, is complete. The samples were collected on June 1 and 8, 1995, by the Technical Assistance Team (TAT) contractor, Ecology and Environment, Inc. (E & E). The samples were submitted to Athena Analytical Laboratory, Inc., Chicago, Illinois, for analysis. The laboratory analyses were performed according to the United States Environmental Protection Agency (U.S. EPA) Solid Waste-846 Method 8270 for the determination of Priority Pollutant List semivolatile organic compounds. Results were reported on a wet-weight basis.

### Sample Identification

<u>TAT</u> <u>Identification No.</u>	<u>Laboratory</u> <u>Identification No.</u>
S-1	AA08582
S-2	AA08583
S-3	AA08584
S-4	AA08585
S-5	AA08586
S-001	AA08611
S-002	AA08612
S-003	AA08613
S-004	AA08614
S-005	AA08615
S-006	AA08616

#### Data Qualifications

I. Sample Holding Time: Acceptable

The samples were received at the laboratory the same day they were collected from the site. Samples S-1 through S-5 were extracted on June 15, 1995, and analyzed by gas chromatography/mass spectrometry (GC/MS) on June 16, 1995, which met the 14-day holding time limit. Samples S-001 through S-006 were extracted June 19, 1995, and analyzed June 21 and 22, 1995.

II. GC/MS Tuning Criteria: Acceptable

Decafluorotriphenylphosphine instrument tuning compound was run within 12 hours and on the same instrument as the samples. All ion abundance criteria were met.

III. Initial and Continuing Calibration Verification: Acceptable

For the initial calibration, all response factors (RFs) had percent relative standard deviations (%RSDs) equal to or less than 30, except for the following: 2,4-dinitrophenol (31.98 %RSD). This compound was not detected in any of the samples; therefore, no action was taken.

All compounds in the daily continuing calibration check standards had mean relative response factors (RRFs) equal to or greater than 0.05. The percent difference (%D) between initial and continuing calibration RRFs was equal to or less than 25%D for all quantitated compounds reported.

The internal standard (IS) areas and retention times (RTs) were within laboratory control limits for all samples and blanks.

IV. Analytical Error: Precision and Bias Not Determined

Two matrix spike samples prepared using sample S-1 had spike compound percent recoveries (%Rs) within stated quality control limits except for 1,2,4-trichlorobenzene. No action was taken based on the results of less than eight replicate matrix spike analyses.

V. Blanks: Acceptable

Method blanks were prepared with the samples, and they were analyzed on the same instrument as the samples. The concentrations of compounds were below the reported Method Detection Limit (MDL).

VI. Compound Identification: Acceptable

Reported compounds had relative retention times within 0.06 units of the standard. Tentatively identified compounds were not reported.

VII. Compound Detection Limits: Acceptable

The reported sample values and detection limits include adjustments for initial sample mass, extraction procedures, and dilutions.



VIII. Surrogate Recoveries: Qualified

All surrogate compound recoveries were within quality control limits for samples S-1 through S-5. Samples S-002, S-004, and S-005 required reanalysis because one or more surrogates were outside specifications. After reanalysis, S-002 and S-005 each had one low surrogate recovery. S-004 had three low surrogate recoveries; therefore, all quantitation results, including detection limits, are flagged "J". No surrogate compounds had less than 10% recovery.

IX. Overall Assessment of Data: Acceptable

This data evaluation is made on criteria established in the Office of Solid Waste and Emergency Response (OSWER) Directive 9360.4-01, Quality Assurance/Quality Control Guidance for Removal Activities, (1990). Based on the data provided, the results are acceptable for use with the noted qualifications.

Data Validation Qualifiers

- J - The associated numerical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control criteria were not met.

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To: Ecology and Environment, Inc.  
6777 Engle Road  
Cleveland, Ohio 44130  
Attention: Emily S. Landis

Report Date: 06/23/95

Date Received: 06/09/95

Analysis Date: 06/12/95

Method: SW-846 8270

Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-001	AA08611		
Phenol		330	< Stated MDL
bis (2-Chlorophenol) ether		330	< Stated MDL
2-Chlorophenol		330	< Stated MDL
1,3-Dichlorobenzene		330	< Stated MDL
1,4-Dichlorobenzene		330	< Stated MDL
1,2-Dichlorobenzene		330	< Stated MDL
Benzyl alcohol		330	< Stated MDL
2-methylphenol		330	< Stated MDL
bis (2-Chloroisopropyl) ether		330	< Stated MDL
Hexachlorethane		330	< Stated MDL
4-Methylphenol		330	< Stated MDL
n-Nitroso-di-n-propylamine		330	< Stated MDL
Nitrobenzene		330	< Stated MDL
Isophorone		330	< Stated MDL
2-Nitrophenol		330	< Stated MDL
2,4-Dimethylphenol		330	< Stated MDL
bis (2-Chloroethoxy) methane		330	< Stated MDL
2,4-Dichlorophenol		330	< Stated MDL
1,2,4-Trichlorobenzene		330	< Stated MDL

Analyst's Initials: AH Reviewed by: lh

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-001	AA08611		
Napthalene		330	< Stated MDL
4-Chloroaniline		330	< Stated MDL
Hexachlorobutadiene		330	< Stated MDL
4-Chloro-3-methylphenol		330	< Stated MDL
2-Methylnaphthalene		330	< Stated MDL
Hexachlorocyclopentadienes		330	< Stated MDL
2,4,6-Trichlorophenol		330	< Stated MDL
2,4,5-Trichlorophenol		800	< Stated MDL
2-Chloronaphthalene		330	< Stated MDL
2-Nitroaniline		330	< Stated MDL
Acenaphthylene		330	< Stated MDL
Dimethylphthalate		800	< Stated MDL
2,6-Dinitrotoluene		330	< Stated MDL
Acenaphthene		330	< Stated MDL
2,4-Dinitrophenol		800	< Stated MDL
3-Nitroaniline		800	< Stated MDL
Dibenzofuran		330	< Stated MDL
4-Nitrophenol		800	< Stated MDL
4-Nitroaniline		800	< Stated MDL
2,4-Dinitrotoluene		330	< Stated MDL
Fluorene		330	< Stated MDL
Diethylphthalate		330	< Stated MDL
4-Chlorophenyl-phenylether		330	< Stated MDL
4,6-Dinitro-2-methylphenol		800	< Stated MDL
n-Nitrosodiphenylamine		330	< Stated MDL
4-Bromophenyl-phenylether		330	< Stated MDL
Hexachlorobenzene		330	< Stated MDL
Pentachlorophenol		800	< Stated MDL
Phenanthrene		330	953.3
Anthracene		330	< Stated MDL
Di-n-butylphthalate		330	< Stated MDL
Fluoranthene		330	1121.7

Analyst's Initials: ELHReviewed by: ch

**ATHENA**  
ANALYTICAL  
LABORATORY, INC.



Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-001	AA08611		
Pyrene		330	1231.7
Butylbenzylphthalate		330	< Stated MDL
Benzo[a]anthracene		330	705.2
3,3-Dichlorobenzidine		330	< Stated MDL
Chrysene		330	805.8
bis(2-Ethylhexyl)phthalate		330	< Stated MDL
Di-n-octylphthalate		330	< Stated MDL
Benzo[b]fluoranthene		330	1022.2
Benzo[k]fluoranthene		330	< Stated MDL
Indeno[1,2,3-cd]pyrene		330	621.5
Dibenz[a,h]anthracene		330	< Stated MDL
Benzo[g,h,i]perylene		330	677.5
Benzo[a]pyrene		330	81.2

Analyst's Initials: AH

Reviewed by: sh

Carol So Chow

Carol So Chow

Laboratory Director

**ATHENA**  
**ANALYTICAL**  
**LABORATORY, INC.**



AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-001	AA08611		
Pyrene		330	1331.7
Butylbenzylphthalate		330	< Stated MDL
Benzo[a]anthracene		330	705.2
3,3-Dichlorobenzidine		330	< Stated MDL
Chrysene		330	805.8
bis(2-Ethylhexyl)phthalate		330	< Stated MDL
Di-n-octylphthalate		330	< Stated MDL
Benzo[b]fluoranthene		330	1022.2
Benzo[k]fluoranthene		330	< Stated MDL
Indeno[1,2,3-cd]pyrene		330	621.5
Dibenz[a,h]anthracene		330	< Stated MDL
Benzo[g,h,i]perylene		330	677.5
Benzo[a]pyrene		330	858.2

Analyst's Initials: Ah Reviewed by: L

Carol So Chow  
Carol So Chow  
Laboratory Director



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Report Date: 06/23/95

Date Received: 06/09/95

Analysis Date: 06/12/95

Method: SW-846 8270

Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-002	AA08612		
Phenol		330	< Stated MDL
bis (2-Chlorophenol) ether		330	< Stated MDL
2-Chlorophenol		330	< Stated MDL
1,3-Dichlorobenzene		330	< Stated MDL
1,4-Dichlorobenzene		330	< Stated MDL
1,2-Dichlorobenzene		330	< Stated MDL
Benzyl alcohol		330	< Stated MDL
2-methylphenol		330	< Stated MDL
bis (2-Chloroisopropyl) ether		330	< Stated MDL
Hexachlorethane		330	< Stated MDL
4-Methylphenol		330	< Stated MDL
n-Nitroso-di-n-propylamine		330	< Stated MDL
Nitrobenzene		330	< Stated MDL
Isophorone		330	< Stated MDL
2-Nitrophenol		330	< Stated MDL
2,4-Dimethylphenol		330	< Stated MDL
bis (2-Chloroethoxy) methane		330	< Stated MDL
2,4-Dichlorophenol		330	< Stated MDL
1,2,4-Trichlorobenzene		330	< Stated MDL

Analyst's Initials: AH

Reviewed by: ch

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-002	AA08612		
Napthalene		330	< Stated MDL
4-Chloroaniline		330	< Stated MDL
Hexachlorobutadiene		330	< Stated MDL
4-Chloro-3-methylphenol		330	< Stated MDL
2-Methylnaphthalene		330	< Stated MDL
Hexachlorocyclopentadienes		330	< Stated MDL
2,4,6-Trichlorophenol		330	< Stated MDL
2,4,5-Trichlorophenol		800	< Stated MDL
2-Chloronaphthalene		330	< Stated MDL
2-Nitroaniline		330	< Stated MDL
Acenaphthylene		330	< Stated MDL
Dimethylphthalate		800	< Stated MDL
2,6-Dinitrotoluene		330	< Stated MDL
Acenaphthene		330	< Stated MDL
2,4-Dinitrophenol		800	< Stated MDL
3-Nitroaniline		800	< Stated MDL
Dibenzofuran		330	< Stated MDL
4-Nitrophenol		800	< Stated MDL
4-Nitroaniline		800	< Stated MDL
2,4-Dinitrotoluene		330	< Stated MDL
Fluorene		330	< Stated MDL
Diethylphthalate		330	< Stated MDL
4-Chlorophenyl-phenylether		330	< Stated MDL
4,6-Dinitro-2-methylphenol		800	< Stated MDL
n-Nitrosodiphenylamine		330	< Stated MDL
4-Bromophenyl-phenylether		330	< Stated MDL
Hexachlorobenzene		330	< Stated MDL
Pentachlorophenol		800	< Stated MDL
Phenanthrene		330	783.0
Anthracene		330	< Stated MDL
Di-n-butylphthalate		330	< Stated MDL
Fluoranthene		330	1239.3

Analyst's Initials: AHReviewed by: ch

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ANALYTICAL  
LABORATORY, INC.



Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-002	AA08612		
Pyrene		330	1342.9
Butylbenzylphthalate		330	< Stated MDL
Benzo[a]anthracene		330	755.8
3,3-Dichlorobenzidine		330	< Stated MDL
Chrysene		330	838.8
bis(2-Ethylhexyl)phthalate		330	< Stated MDL
Di-n-octylphthalate		330	< Stated MDL
Benzo[b]fluoranthene		330	1213.6
Benzo[k]fluoranthene		330	< Stated MDL
Indeno[1,2,3-cd]pyrene		330	628.7
Dibenz[a,h]anthracene		330	< Stated MDL
Benzo[g,h,i]perylene		330	567.8
Benzo[a]pyrene		330	856.7

Analyst's Initials: AHReviewed by: dh

Carol So Chow

Laboratory Director

**ATHENA**  
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**ATHENA**  
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Attention: Emily S. Landis

Report Date: 06/23/95

Date Received: 06/09/95

Analysis Date: 06/12/95

Method: SW-846 8270

Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-003	AA08613		
Phenol		330	< Stated MDL
bis (2-Chlorophenol) ether		330	< Stated MDL
2-Chlorophenol		330	< Stated MDL
1,3-Dichlorobenzene		330	< Stated MDL
1,4-Dichlorobenzene		330	< Stated MDL
1,2-Dichlorobenzene		330	< Stated MDL
Benzyl alcohol		330	< Stated MDL
2-methylphenol		330	< Stated MDL
bis (2-Chloroisopropyl) ether		330	< Stated MDL
Hexachlorethane		330	< Stated MDL
4-Methylphenol		330	< Stated MDL
n-Nitroso-di-n-propylamine		330	< Stated MDL
Nitrobenzene		330	< Stated MDL
Isophorone		330	< Stated MDL
2-Nitrophenol		330	< Stated MDL
2,4-Dimethylphenol		330	< Stated MDL
bis (2-Chloroethoxy) methane		330	< Stated MDL
2,4-Dichlorophenol		330	< Stated MDL
1,2,4-Trichlorobenzene		330	< Stated MDL

Analyst's Initials: AA Reviewed by: ch

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-003	AA08613		
Napthalene		330	< Stated MDL
4-Chloroaniline		330	< Stated MDL
Hexachlorobutadiene		330	< Stated MDL
4-Chloro-3-methylphenol		330	< Stated MDL
2-Methylnaphthalene		330	< Stated MDL
Hexachlorocyclopentadienes		330	< Stated MDL
2,4,6-Trichlorophenol		330	< Stated MDL
2,4,5-Trichlorophenol		800	< Stated MDL
2-Chloronaphthalene		330	< Stated MDL
2-Nitroaniline		330	< Stated MDL
Acenaphthylene		330	< Stated MDL
Dimethylphthalate		800	< Stated MDL
2,6-Dinitrotoluene		330	< Stated MDL
Acenaphthene		330	< Stated MDL
2,4-Dinitrophenol		800	< Stated MDL
3-Nitroaniline		800	< Stated MDL
Dibenzofuran		330	< Stated MDL
4-Nitrophenol		800	< Stated MDL
4-Nitroaniline		800	< Stated MDL
2,4-Dinitrotoluene		330	< Stated MDL
Fluorene		330	< Stated MDL
Diethylphthalate		330	< Stated MDL
4-Chlorophenyl-phenylether		330	< Stated MDL
4,6-Dinitro-2-methylphenol		800	< Stated MDL
n-Nitrosodiphenylamine		330	< Stated MDL
4-Bromophenyl-phenylether		330	< Stated MDL
Hexachlorobenzene		330	< Stated MDL
Pentachlorophenol		800	< Stated MDL
Phenanthrene		330	< Stated MDL
Anthracene		330	< Stated MDL
Di-n-butylphthalate		330	< Stated MDL
Fluoranthene		330	< Stated MDL

Analyst's Initials: AHReviewed by: ch

**ATHENA**  
ANALYTICAL  
LABORATORY, INC.



Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-003	AA08613		
Pyrene		330	< Stated MDL
Butylbenzylphthalate		330	< Stated MDL
Benzo[a]anthracene		330	< Stated MDL
3,3-Dichlorobenzidine		330	< Stated MDL
Chrysene		330	< Stated MDL
bis(2-Ethylhexyl)phthalate		330	< Stated MDL
Di-n-octylphthalate		330	< Stated MDL
Benzo[b]fluoranthene		330	< Stated MDL
Benzo[k]fluoranthene		330	< Stated MDL
Indeno[1,2,3-cd]pyrene		330	< Stated MDL
Dibenz[a,h]anthracene		330	< Stated MDL
Benzo[g,h,i]perylene		330	< Stated MDL
Benzo[a]pyrene		330	< Stated MDL

Analyst's Initials: AHReviewed by: sh

Carol So Chow  
Carol So Chow  
Laboratory Director



# ATHENA ANALYTICAL LABORATORY, INC.



8609 West Bryn Mawr

Suite 201

Chicago, Illinois 60631

PHONE 312-693-8030

FAX 312-693-8753

To: Ecology and Environment, Inc.  
6777 Engle Road  
Cleveland, Ohio 44130  
Attention: Emily S. Landis

Report Date: 06/23/95

Date Received: 06/09/95

Analysis Date: 06/12/95

Method: SW-846 8270

Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

✓ P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-004	AA08614		
Phenol		330	< Stated MDL
bis (2-Chlorophenol) ether		330	< Stated MDL
2-Chlorophenol		330	< Stated MDL
1,3-Dichlorobenzene		330	< Stated MDL
1,4-Dichlorobenzene		330	< Stated MDL
1,2-Dichlorobenzene		330	< Stated MDL
Benzyl alcohol		330	< Stated MDL
2-methylphenol		330	< Stated MDL
bis (2-Chloroisopropyl) ether		330	< Stated MDL
Hexachlorethane		330	< Stated MDL
4-Methylphenol		330	< Stated MDL
n-Nitroso-di-n-propylamine		330	< Stated MDL
Nitrobenzene		330	< Stated MDL
Isophorone		330	< Stated MDL
2-Nitrophenol		330	< Stated MDL
2,4-Dimethylphenol		330	< Stated MDL
bis (2-Chloroethoxy) methane		330	< Stated MDL
2,4-Dichlorophenol		330	< Stated MDL
1,2,4-Trichlorobenzene		330	< Stated MDL

Analyst's Initials: AM

Reviewed by: ch

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-004	AA08614		
Napthalene		330	< Stated MDL
4-Chloroaniline		330	< Stated MDL
Hexachlorobutadiene		330	< Stated MDL
4-Chloro-3-methylphenol		330	< Stated MDL
2-Methylnaphthalene		330	< Stated MDL
Hexachlorocyclopentadienes		330	< Stated MDL
2,4,6-Trichlorophenol		330	< Stated MDL
2,4,5-Trichlorophenol		800	< Stated MDL
2-Chloronaphthalene		330	< Stated MDL
2-Nitroaniline		330	< Stated MDL
Acenaphthylene		330	< Stated MDL
Dimethylphthalate		800	< Stated MDL
2,6-Dinitrotoluene		330	< Stated MDL
Acenaphthene		330	< Stated MDL
2,4-Dinitrophenol		800	< Stated MDL
3-Nitroaniline		800	< Stated MDL
Dibenzofuran		330	< Stated MDL
4-Nitrophenol		800	< Stated MDL
4-Nitroaniline		800	< Stated MDL
2,4-Dinitrotoluene		330	< Stated MDL
Fluorene		330	< Stated MDL
Diethylphthalate		330	< Stated MDL
4-Chlorophenyl-phenylether		330	< Stated MDL
4,6-Dinitro-2-methylphenol		800	< Stated MDL
n-Nitrosodiphenylamine		330	< Stated MDL
4-Bromophenyl-phenylether		330	< Stated MDL
Hexachlorobenzene		330	< Stated MDL
Pentachlorophenol		800	< Stated MDL
Phenanthrene		330	455.2
Anthracene		330	< Stated MDL
Di-n-butylphthalate		330	< Stated MDL
Fluoranthene		330	958.8

Analyst's Initials: AHReviewed by: ch

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ANALYTICAL  
LABORATORY, INC.



Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-004	AA08614		
Pyrene		330	277.1
Butylbenzylphthalate		330	< Stated MDL
Benzo[a]anthracene		330	530.3
3,3-Dichlorobenzidine		330	< Stated MDL
Chrysene		330	551.2
bis(2-Ethylhexyl)phthalate		330	< Stated MDL
Di-n-octylphthalate		330	< Stated MDL
Benzo[b]fluoranthene		330	779.9
Benzo[k]fluoranthene		330	< Stated MDL
Indeno[1,2,3-cd]pyrene		330	415.8
Dibenz[a,h]anthracene		330	< Stated MDL
Benzo[g,h,i]perylene		330	< Stated MDL
Benzo[a]pyrene		330	575.5

Analyst's Initials: AHReviewed by: shCarol So Chow

Carol So Chow

Laboratory Director



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To: Ecology and Environment, Inc.  
6777 Engle Road  
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Attention: Emily S. Landis

Report Date: 06/23/95

Date Received: 06/09/95

Analysis Date: 06/12/95

Method: SW-846 8270

Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-005	AA08615		
Phenol		330	< Stated MDL
bis (2-Chlorophenol) ether		330	< Stated MDL
2-Chlorophenol		330	< Stated MDL
1,3-Dichlorobenzene		330	< Stated MDL
1,4-Dichlorobenzene		330	< Stated MDL
1,2-Dichlorobenzene		330	< Stated MDL
Benzyl alcohol		330	< Stated MDL
2-methylphenol		330	< Stated MDL
bis (2-Chloroisopropyl) ether		330	< Stated MDL
Hexachlorethane		330	< Stated MDL
4-Methylphenol		330	< Stated MDL
n-Nitroso-di-n-propylamine		330	< Stated MDL
Nitrobenzene		330	< Stated MDL
Isophorone		330	< Stated MDL
2-Nitrophenol		330	< Stated MDL
2,4-Dimethylphenol		330	< Stated MDL
bis (2-Chloroethoxy) methane		330	< Stated MDL
2,4-Dichlorophenol		330	< Stated MDL
1,2,4-Trichlorobenzene		330	< Stated MDL

Analyst's Initials: AH

Reviewed by: h

*all quantitated  
results and  
MDL flag "g"  
see 6/24/95*

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-004	AA08614		
Pyrene		330	277.1
Butylbenzylphthalate		330	< Stated MDL
Benzo[a]anthracene		330	530.3
3,3-Dichlorobenzidine		330	< Stated MDL
Chrysene		330	551.2
bis(2-Ethylhexyl)phthalate		330	< Stated MDL
Di-n-octylphthalate		330	< Stated MDL
Benzo[b]fluoranthene		330	779.9
Benzo[k]fluoranthene		330	< Stated MDL
Indeno[1,2,3-cd]pyrene		330	415.8
Dibenz[a,h]anthracene		330	< Stated MDL
Benzo[g,h,i]perylene		330	< Stated MDL
Benzo[a]pyrene		330	575.5

Analyst's Initials: AHReviewed by: ShCarol So Chow

Carol So Chow

Laboratory Director





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Method: SW-846 8270

Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-005	AA08615		
Phenol		330	< Stated MDL
bis (2-Chlorophenol) ether		330	< Stated MDL
2-Chlorophenol		330	< Stated MDL
1,3-Dichlorobenzene		330	< Stated MDL
1,4-Dichlorobenzene		330	< Stated MDL
1,2-Dichlorobenzene		330	< Stated MDL
Benzyl alcohol		330	< Stated MDL
2-methylphenol		330	< Stated MDL
bis (2-Chloroisopropyl) ether		330	< Stated MDL
Hexachlorethane		330	< Stated MDL
4-Methylphenol		330	< Stated MDL
n-Nitroso-di-n-propylamine		330	< Stated MDL
Nitrobenzene		330	< Stated MDL
Isophorone		330	< Stated MDL
2-Nitrophenol		330	< Stated MDL
2,4-Dimethylphenol		330	< Stated MDL
bis (2-Chloroethoxy) methane		330	< Stated MDL
2,4-Dichlorophenol		330	< Stated MDL
1,2,4-Trichlorobenzene		330	< Stated MDL

Analyst's Initials: AH

Reviewed by: h

*all quantitated  
residues and  
MDL flag "g"  
JCL 6/21/95*

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-005	AA08615		
Napthalene		330	< Stated MDL
4-Chloroaniline		330	< Stated MDL
Hexachlorobutadiene		330	< Stated MDL
4-Chloro-3-methylphenol		330	< Stated MDL
2-Methylnaphthalene		330	< Stated MDL
Hexachlorocyclopentadienes		330	< Stated MDL
2,4,6-Trichlorophenol		330	< Stated MDL
2,4,5-Trichlorophenol		800	< Stated MDL
2-Chloronaphthalene		330	< Stated MDL
2-Nitroaniline		330	< Stated MDL
Acenaphthylene		330	< Stated MDL
Dimethylphthalate		800	< Stated MDL
2,6-Dinitrotoluene		330	< Stated MDL
Acenaphthene		330	< Stated MDL
2,4-Dinitrophenol		800	< Stated MDL
3-Nitroaniline		800	< Stated MDL
Dibenzofuran		330	< Stated MDL
4-Nitrophenol		800	< Stated MDL
4-Nitroaniline		800	< Stated MDL
2,4-Dinitrotoluene		330	< Stated MDL
Fluorene		330	< Stated MDL
Diethylphthalate		330	< Stated MDL
4-Chlorophenyl-phenylether		330	< Stated MDL
4,6-Dinitro-2-methylphenol		800	< Stated MDL
n-Nitrosodiphenylamine		330	< Stated MDL
4-Bromophenyl-phenylether		330	< Stated MDL
Hexachlorobenzene		330	< Stated MDL
Pentachlorophenol		800	< Stated MDL
Phenanthrene		330	2278.4
Anthracene		330	581.8
Di-n-butylphthalate		330	447.4
Fluoranthene		330	3274.8

Analyst's Initials: ALLReviewed by: ch

*flag quantified results  
and MDL's  
see 8/2/96*

**ATHENA**  
ANALYTICAL  
LABORATORY, INC.



Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-005	AA08615		
Pyrene		330	3656.9
Butylbenzylphthalate		330	< Stated MDL
Benzo[a]anthracene		330	2036.7
3,3-Dichlorobenzidine		330	< Stated MDL
Chrysene		330	2098.4
bis(2-Ethylhexyl)phthalate		330	< Stated MDL
Di-n-octylphthalate		330	< Stated MDL
Benzo[b]fluoranthene		330	2719.5
Benzo[k]fluoranthene		330	972.9
Indeno[1,2,3-cd]pyrene		330	1378.4
Dibenz[a,h]anthracene		330	< Stated MDL
Benzo[g,h,i]perylene		330	1207.5
Benzo[a]pyrene		330	2073.4

Analyst's Initials: AAReviewed by: ShCarol So ChowCarol So Chow  
Laboratory Director

for quantitated names  
and MDLs "g" see 8/2/95

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Attention: Emily S. Landis

Report Date: 06/23/95  
Date Received: 06/09/95  
Analysis Date: 06/12/95  
Method: SW-846 8270  
Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-006	AA08616		
Phenol		330	< Stated MDL
bis (2-Chlorophenol) ether		330	< Stated MDL
2-Chlorophenol		330	< Stated MDL
1,3-Dichlorobenzene		330	< Stated MDL
1,4-Dichlorobenzene		330	< Stated MDL
1,2-Dichlorobenzene		330	< Stated MDL
Benzyl alcohol		330	< Stated MDL
2-methylphenol		330	< Stated MDL
bis (2-Chloroisopropyl) ether		330	< Stated MDL
Hexachlorethane		330	< Stated MDL
4-Methylphenol		330	< Stated MDL
n-Nitroso-di-n-propylamine		330	< Stated MDL
Nitrobenzene		330	< Stated MDL
Isophorone		330	< Stated MDL
2-Nitrophenol		330	< Stated MDL
2,4-Dimethylphenol		330	< Stated MDL
bis (2-Chloroethoxy) methane		330	< Stated MDL
2,4-Dichlorophenol		330	< Stated MDL
1,2,4-Trichlorobenzene		330	< Stated MDL

Analyst's Initials: AH Reviewed by: ch

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-006	AA08616		
Napthalene		330	< Stated MDL
4-Chloroaniline		330	< Stated MDL
Hexachlorobutadiene		330	< Stated MDL
4-Chloro-3-methylphenol		330	< Stated MDL
2-Methylnaphthalene		330	< Stated MDL
Hexachlorocyclopentadienes		330	< Stated MDL
2,4,6-Trichlorophenol		330	< Stated MDL
2,4,5-Trichlorophenol		800	< Stated MDL
2-Chloronaphthalene		330	< Stated MDL
2-Nitroaniline		330	< Stated MDL
Acenaphthylene		330	< Stated MDL
Dimethylphthalate		800	< Stated MDL
2,6-Dinitrotoluene		330	< Stated MDL
Acenaphthene		330	< Stated MDL
2,4-Dinitrophenol		800	< Stated MDL
3-Nitroaniline		800	< Stated MDL
Dibenzofuran		330	< Stated MDL
4-Nitrophenol		800	< Stated MDL
4-Nitroaniline		800	< Stated MDL
2,4-Dinitrotoluene		330	< Stated MDL
Fluorene		330	< Stated MDL
Diethylphthalate		330	< Stated MDL
4-Chlorophenyl-phenylether		330	< Stated MDL
4,6-Dinitro-2-methylphenol		800	< Stated MDL
n-Nitrosodiphenylamine		330	< Stated MDL
4-Bromophenyl-phenylether		330	< Stated MDL
Hexachlorobenzene		330	< Stated MDL
Pentachlorophenol		800	< Stated MDL
Phenanthrene		330	926.3
Anthracene		330	< Stated MDL
Di-n-butylphthalate		330	< Stated MDL
Fluoranthene		330	1314.5

Analyst's Initials: FAReviewed by: ch

**ATHENA**  
ANALYTICAL  
LABORATORY, INC.



Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-006	AA08616		
Pyrene		330	1422.3
Butylbenzylphthalate		330	< Stated MDL
Benzo[a]anthracene		330	740.2
3,3-Dichlorobenzidine		330	< Stated MDL
Chrysene		330	777.6
bis(2-Ethylhexyl)phthalate		330	< Stated MDL
Di-n-octylphthalate		330	< Stated MDL
Benzo[b]fluoranthene		330	969.5
Benzo[k]fluoranthene		330	< Stated MDL
Indeno[1,2,3-cd]pyrene		330	513.4
Dibenz[a,h]anthracene		330	< Stated MDL
Benzo[g,h,i]perylene		330	444.1
Benzo[a]pyrene		330	728.1

Analyst's Initials: AH Reviewed by: shCarol So ChowCarol So Chow  
Laboratory DirectorATHENA  
ANALYTICAL  
LABORATORY, INC.



# ecology and environment, inc.

International Specialists in the Environment

111 West Jackson Boulevard  
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Tel: (312) 663-9415, Fax: (312) 663-0791

## MEMORANDUM

DATE: August 15, 1995

TO: John Sherrard, TAT Project Manager, E & E, Chicago, Illinois

FROM: Emily S. Landis, TAT Geochemist, E & E, Cleveland, Ohio

THROUGH: Anne A. Busher, ATATL, E & E, Cleveland, Ohio  
David Hendren, TAT Analytical Services Manager, E & E, Chicago, Illinois  
Mary J. Ripp, TAT QA Reports Manager, E & E, Chicago, Illinois

SUBJECT: Priority Pollutant List Volatile Organic Compound (VOC) Data  
Quality Assurance Review, International Harvester/Dutch Boy,  
Chicago, Cook County, Illinois

REFERENCE: Project TDD T05-9505-011 Analytical TDD T05-9505-806  
Project PAN EIL0607VBA Analytical PAN EIL0607ACA

The data quality assurance (QA) review of 11 discrete soil samples, collected from the International Harvester/Dutch Boy site, is complete. The samples were collected on June 1 and 8, 1995, by the Technical Assistance Team (TAT) contractor, Ecology and Environment, Inc. (E & E). The samples were submitted to Athena Analytical Laboratory, Inc. (AAL), Chicago, Illinois, for analysis by gas chromatography/mass spectrometry (GC/MS). The laboratory analyses were performed according to the United States Environmental Protection Agency (U.S. EPA) Solid Waste-846 Method 8260 for the determination of Priority Pollutant List volatile organic compounds. Results were reported on a dry-weight basis.

### Sample Identification

<u>TAT</u> <u>Identification No.</u>	<u>Laboratory</u> <u>Identification No.</u>
S-1	AA08582
S-2	AA08583
S-3	AA08584
S-4	AA08585RE
S-5	AA08586RE
S-001	AA08611
S-002	AA08612RE
S-003	AA08613
S-004	AA08614
S-005	AA08615RE
S-006	AA08616

Data Qualifications

I. Sample Holding Times: Acceptable

All samples were received at the laboratory within 24 hours of collection. The samples were extracted and analyzed within the 14-day holding time limit.

II. GC/MS Tuning Criteria: Acceptable

For each group of samples, bromofluorobenzene instrument tuning compound was run within 12 hours and on the same instrument as the samples. All ion abundance criteria were met.

III. Initial and Continuing Calibration Verification: Acceptable

All VOCs had response factors (RFs) equal to or greater than 0.05. For the initial calibration, all VOCs had percent relative standard deviations (%RSDs) equal to or less than 30%.

The percent differences (%Ds) between initial and continuing calibration RFs on June 6, 1995, were equal to or less than 25, as required. However, continuing calibration checks on June 7 and 20, 1995, had seven compounds with greater than 25%D. These compounds were not detected in the respective sample groups; therefore, no action was taken.

Internal standard (IS) areas and retention times (RTs) were within stated control limits.

IV. Analytical Error: Precision and Bias Not Determined

Percent recoveries for sample S-1 matrix spike recoveries were within quality control limits.

V. Blanks: Acceptable

A method blank was prepared with each batch of samples, and analyzed on the same instrument as the samples. The concentrations of VOCs were reported as below the Method Detection Limit.

VI. Compound Identification: Acceptable

No VOCs were detected in these samples. A search for tentatively identified compounds (TICs) was not reported.

VII. Quantitation and Reported Detection Limits: Acceptable

The reported values and detection limits reflect appropriate dilution factors. Sample results were reported on a dry-weight basis.

VIII. Surrogate Recoveries: Qualified

Surrogate percent recoveries were acceptable except for samples S-4, S-5, S-002, and S-006. Each of these samples was reanalyzed, and yielded the same result. Therefore, compound detection limits are qualified "J", as required.



International Harvester/Dutch Boy  
Project TDD T05-9505-011  
Analytical TDD T05-9505-806  
Page 3 of 3

IX. Overall Assessment of Data: Acceptable

This data evaluation is made on criteria established in the Office of Solid Waste and Emergency Response (OSWER) Directive 9360.4-01, Quality Assurance/Quality Control Guidance for Removal Activities (1990). Based on the data provided, the results are acceptable for use with the qualifications noted.

Data Validation Qualifiers

- J - The associated numerical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control criteria were not met.

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Report Date: 06/22/95

Date Received: 05/09/95

Analysis Date: 06/12/95

Method: SW-846 8260

Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

✓ P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-001	AA08611		
Dichlorodifluoromethane		5	< Stated MDL
Chloromethane		5	< Stated MDL
Vinyl chloride		5	< Stated MDL
Bromomethane		5	< Stated MDL
Chloroethane		5	< Stated MDL
Trichlorofluoromethane		5	< Stated MDL
1,1-Dichloroethene		5	< Stated MDL
Carbon disulfide		10	< Stated MDL
Methylene chloride		5	< Stated MDL
cis-1,2-Dichloroethene		5	< Stated MDL
Acetone		10	< Stated MDL
1,1-Dichloroethane		5	< Stated MDL
2-Butanone (MEK)		10	< Stated MDL
trans-1,2-Dichloroethene		5	< Stated MDL
Bromochloromethane		5	< Stated MDL
1,2-Dichloroethane		5	< Stated MDL
2,2-Dichloropropane		5	< Stated MDL
Chloroform		5	< Stated MDL
1,1,1-Trichloroethane		5	< Stated MDL

Analyst's Initials: AEI

Reviewed by: [Signature]

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-001	AA08611		
1,1-Dichloro-1-propene		5	< Stated MDL
Carbon tetrachloride		5	< Stated MDL
Benzene		5	< Stated MDL
Trichloroethene		5	< Stated MDL
1,2-Dichloropropane		5	< Stated MDL
Bromdichloromethane		5	< Stated MDL
Dibromomethane		5	< Stated MDL
trans-1,3-Dichloropropene		5	< Stated MDL
4-Methyl-2-Pentanone (MIBK)		10	< Stated MDL
cis-1,3-Dichloropropene		5	< Stated MDL
1,1,2-Trichloroethane		5	< Stated MDL
1,3-Dichloropropane		5	< Stated MDL
Chlorodibromomethane		5	< Stated MDL
1,2-Dibromoethane		5	< Stated MDL
Toluene		5	< Stated MDL
2-Hexanone		10	< Stated MDL
Tetrachloroethene		5	< Stated MDL
Chlorobenzene		5	< Stated MDL
Ethylbenzene		5	< Stated MDL
1,1,1,2-Tetrachloroethane		5	< Stated MDL
m,p,-Xylenes		5	< Stated MDL
o-Xylene		5	< Stated MDL
Styrene		5	< Stated MDL
Bromoform		5	< Stated MDL
1,1,2,2-Tetrachloroethane		5	< Stated MDL
1,3,5-Trimethylbenzene		5	< Stated MDL
Isopropylbenzene (Cumene)		5	< Stated MDL
1,2,4-Trimethylbenzene		5	< Stated MDL
1,2,3-Trichloropropane		5	< Stated MDL
Propylbenzene		5	< Stated MDL
Bromobenzene		5	< Stated MDL
tert-Butylbenzene		5	< Stated MDL

Analyst's Initials: AEReviewed by: ch

**ATHENA**  
ANALYTICAL  
LABORATORY, INC.



# ATHENA ANALYTICAL LABORATORY, INC.



8609 West Bryn Mawr  
Suite 201  
Chicago, Illinois 60631  
PHONE 312-693-8030  
FAX 312-693-8783

To: Ecology and Environment, Inc.  
6777 Engle Road  
Cleveland, Ohio 44130  
Attention: Emily S. Landis

Report Date: 06/22/95  
Date Received: 05/09/95  
Analysis Date: 06/12/95  
Method: SW-846 8260  
Matrix: SOIL  
AAL COC Number: 01475

Project Number: ZT3051  
Project Name: T05-9505-806  
P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-001	AA08611		
Dichlorodifluoromethane		5	< Stated MDL
Chloromethane		5	< Stated MDL
Vinyl chloride		5	< Stated MDL
Bromomethane		5	< Stated MDL
Chloroethane		5	< Stated MDL
Trichlorofluoromethane		5	< Stated MDL
1,1-Dichloroethene		5	< Stated MDL
Carbon disulfide		10	< Stated MDL
Methylene chloride		5	< Stated MDL
cis-1,2-Dichloroethene		5	< Stated MDL
Acetone		10	< Stated MDL
1,1-Dichloroethane		5	< Stated MDL
2-Butanone (MEK)		10	< Stated MDL
trans-1,2-Dichloroethene		5	< Stated MDL
Bromochloromethane		5	< Stated MDL
1,2-Dichloroethane		5	< Stated MDL
2,2-Dichloropropane		5	< Stated MDL
Chloroform		5	< Stated MDL
1,1,1-Trichloroethane		5	< Stated MDL

Analyst's Initials: AEH

Reviewed by: JE

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-001	AA08611		
1,1-Dichloro-1-propene		5	< Stated MDL
Carbon tetrachloride		5	< Stated MDL
Benzene		5	< Stated MDL
Trichloroethene		5	< Stated MDL
1,2-Dichloropropane		5	< Stated MDL
Bromdichloromethane		5	< Stated MDL
Dibromomethane		5	< Stated MDL
trans-1,3-Dichloropropene		5	< Stated MDL
4-Methyl-2-Pentanone (MIBK)		10	< Stated MDL
cis-1,3-Dichloropropene		5	< Stated MDL
1,1,2-Trichloroethane		5	< Stated MDL
1,3-Dichloropropane		5	< Stated MDL
Chlorodibromomethane		5	< Stated MDL
1,2-Dibromoethane		5	< Stated MDL
Toluene		5	< Stated MDL
2-Hexanone		10	< Stated MDL
Tetrachloroethene		5	< Stated MDL
Chlorobenzene		5	< Stated MDL
Ethylbenzene		5	< Stated MDL
1,1,1,2-Tetrachloroethane		5	< Stated MDL
m,p,-Xylenes		5	< Stated MDL
o-Xylene		5	< Stated MDL
Styrene		5	< Stated MDL
Bromoform		5	< Stated MDL
1,1,2,2-Tetrachloroethane		5	< Stated MDL
1,3,5-Trimethylbenzene		5	< Stated MDL
Isopropylbenzene (Cumene)		5	< Stated MDL
1,2,4-Trimethylbenzene		5	< Stated MDL
1,2,3-Trichloropropane		5	< Stated MDL
Propylbenzene		5	< Stated MDL
Bromobenzene		5	< Stated MDL
tert-Butylbenzene		5	< Stated MDL

Analyst's Initials: AliReviewed by: ch

**ATHENA**  
ANALYTICAL  
LABORATORY, INC.



Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-001	AA08611		
2-Chlorotoluene		5	< Stated MDL
4-Chlorotoluene		5	< Stated MDL
p-Isopropyltoluene (Cymene)		5	< Stated MDL
sec-Butylbenzene		5	< Stated MDL
n-Butylbenzene		5	< Stated MDL
1,3-Dichlorobenzene		5	< Stated MDL
1,4-Dichlorobenzene		5	< Stated MDL
1,2-Dichlorobenzene		5	< Stated MDL
1,2-Dibromo-3-chloropropane		5	< Stated MDL
1,2,4-Trichlorobenzene		5	< Stated MDL
1,2,3-Trichlorobenzene		5	< Stated MDL
Hexachlorobutadiene		5	< Stated MDL
Naphthalene		5	< Stated MDL

Analyst's Initials: AH Reviewed by: ch

Carol So Chow  
Carol So Chow  
Laboratory Director



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To: Ecology and Environment, Inc.  
6777 Engle Road  
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Attention: Emily S. Landis

Report Date: 06/22/95  
Date Received: 06/09/95  
Analysis Date: 06/12/95  
Method: SW-846 8260  
Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

*all not flagged  
8-2-95*

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-002	AA08612		
Dichlorodifluoromethane		5	< Stated MDL
Chloromethane		5	< Stated MDL
Vinyl chloride		5	< Stated MDL
Bromomethane		5	< Stated MDL
Chloroethane		5	< Stated MDL
Trichlorofluoromethane		5	< Stated MDL
1,1-Dichloroethene		5	< Stated MDL
Carbon disulfide		10	< Stated MDL
Methylene chloride		5	< Stated MDL
cis-1,2-Dichloroethene		5	< Stated MDL
Acetone		10	< Stated MDL
1,1-Dichloroethane		5	< Stated MDL
2-Butanone (MEK)		10	< Stated MDL
trans-1,2-Dichloroethene		5	< Stated MDL
Bromochloromethane		5	< Stated MDL
1,2-Dichloroethane		5	< Stated MDL
2,2-Dichloropropane		5	< Stated MDL
Chloroform		5	< Stated MDL
1,1,1-Trichloroethane		5	< Stated MDL

Analyst's Initials: Alt

Reviewed by: ch

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

*all notes filed  
see 8.2.95*

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-002	AA08612		
1,1-Dichloro-1-propene		5	< Stated MDL
Carbon tetrachloride		5	< Stated MDL
Benzene		5	< Stated MDL
Trichloroethene		5	< Stated MDL
1,2-Dichloropropane		5	< Stated MDL
Bromdichloromethane		5	< Stated MDL
Dibromomethane		5	< Stated MDL
trans-1,3-Dichloropropene		5	< Stated MDL
4-Methyl-2-Pentanone (MIBK)		10	< Stated MDL
cis-1,3-Dichloropropene		5	< Stated MDL
1,1,2-Trichloroethane		5	< Stated MDL
1,3-Dichloropropane		5	< Stated MDL
Chlorodibromomethane		5	< Stated MDL
1,2-Dibromoethane		5	< Stated MDL
Toluene		5	< Stated MDL
2-Hexanone		10	< Stated MDL
Tetrachloroethene		5	< Stated MDL
Chlorobenzene		5	< Stated MDL
Ethylbenzene		5	< Stated MDL
1,1,1,2-Tetrachloroethane		5	< Stated MDL
m,p,-Xylenes		5	< Stated MDL
o-Xylene		5	< Stated MDL
Styrene		5	< Stated MDL
Bromoform		5	< Stated MDL
1,1,2,2-Tetrachloroethane		5	< Stated MDL
1,3,5-Trimethylbenzene		5	< Stated MDL
Isopropylbenzene (Cumene)		5	< Stated MDL
1,2,4-Trimethylbenzene		5	< Stated MDL
1,2,3-Trichloropropane		5	< Stated MDL
Propylbenzene		5	< Stated MDL
Bromobenzene		5	< Stated MDL
tert-Butylbenzene		5	< Stated MDL

Analyst's Initials: Alt Reviewed by: h

**ATHENA**  
ANALYTICAL  
LABORATORY, INC.





Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

*all mdls flagged  
all 8-2-95*

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-002	AA08612		
2-Chlorotoluene		5	< Stated MDL
4-Chlorotoluene		5	< Stated MDL
p-Isopropyltoluene (Cymene)		5	< Stated MDL
sec-Butylbenzene		5	< Stated MDL
n-Butylbenzene		5	< Stated MDL
1,3-Dichlorobenzene		5	< Stated MDL
1,4-Dichlorobenzene		5	< Stated MDL
1,2-Dichlorobenzene		5	< Stated MDL
1,2-Dibromo-3-chloropropane		5	< Stated MDL
1,2,4-Trichlorobenzene		5	< Stated MDL
1,2,3-Trichlorobenzene		5	< Stated MDL
Hexachlorobutadiene		5	< Stated MDL
Naphthalene		5	< Stated MDL

Analyst's Initials: AH Reviewed by: LS

Carol So Chow  
Carol So Chow  
Laboratory Director



**ATHENA**  
**ANALYTICAL**  
**LABORATORY, INC.**



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Suite 201

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PHONE 312-693-8030

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To: Ecology and Environment, Inc.  
6777 Engle Road  
Cleveland, Ohio 44130  
Attention: Emily S. Landis

Report Date: 06/22/95

Date Received: 06/09/95

Analysis Date: 06/12/95

Method: SW-846 8260

Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

✓ P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-003	AA08613		
Dichlorodifluoromethane		5	< Stated MDL
Chloromethane		5	< Stated MDL
Vinyl chloride		5	< Stated MDL
Bromomethane		5	< Stated MDL
Chloroethane		5	< Stated MDL
Trichlorofluoromethane		5	< Stated MDL
1,1-Dichloroethene		5	< Stated MDL
Carbon disulfide		10	< Stated MDL
Methylene chloride		5	< Stated MDL
cis-1,2-Dichloroethene		5	< Stated MDL
Acetone		10	< Stated MDL
1,1-Dichloroethane		5	< Stated MDL
2-Butanone (MEK)		10	< Stated MDL
trans-1,2-Dichloroethene		5	< Stated MDL
Bromochloromethane		5	< Stated MDL
1,2-Dichloroethane		5	< Stated MDL
2,2-Dichloropropane		5	< Stated MDL
Chloroform		5	< Stated MDL
1,1,1-Trichloroethane		5	< Stated MDL

Analyst's Initials: AH

Reviewed by: ch

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-003	AA08613		
1,1-Dichloro-1-propene		5	< Stated MDL
Carbon tetrachloride		5	< Stated MDL
Benzene		5	< Stated MDL
Trichloroethene		5	< Stated MDL
1,2-Dichloropropane		5	< Stated MDL
Bromdichloromethane		5	< Stated MDL
Dibromomethane		5	< Stated MDL
trans-1,3-Dichloropropene		5	< Stated MDL
4-Methyl-2-Pentanone (MIBK)		10	< Stated MDL
cis-1,3-Dichloropropene		5	< Stated MDL
1,1,2-Trichloroethane		5	< Stated MDL
1,3-Dichloropropane		5	< Stated MDL
Chlorodibromomethane		5	< Stated MDL
1,2-Dibromoethane		5	< Stated MDL
Toluene		5	< Stated MDL
2-Hexanone		10	< Stated MDL
Tetrachloroethene		5	< Stated MDL
Chlorobenzene		5	< Stated MDL
Ethylbenzene		5	< Stated MDL
1,1,1,2-Tetrachloroethane		5	< Stated MDL
m,p,-Xylenes		5	< Stated MDL
o-Xylene		5	< Stated MDL
Styrene		5	< Stated MDL
Bromoform		5	< Stated MDL
1,1,2,2-Tetrachloroethane		5	< Stated MDL
1,3,5-Trimethylbenzene		5	< Stated MDL
Isopropylbenzene (Cumene)		5	< Stated MDL
1,2,4-Trimethylbenzene		5	< Stated MDL
1,2,3-Trichloropropane		5	< Stated MDL
Propylbenzene		5	< Stated MDL
Bromobenzene		5	< Stated MDL
tert-Butylbenzene		5	< Stated MDL

Analyst's Initials: HLReviewed by: ch

**ATHENA**  
ANALYTICAL  
LABORATORY, INC.



Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-003	AA08613		
2-Chlorotoluene		5	< Stated MDL
4-Chlorotoluene		5	< Stated MDL
p-Isopropyltoluene (Cymene)		5	< Stated MDL
sec-Butylbenzene		5	< Stated MDL
n-Butylbenzene		5	< Stated MDL
1,3-Dichlorobenzene		5	< Stated MDL
1,4-Dichlorobenzene		5	< Stated MDL
1,2-Dichlorobenzene		5	< Stated MDL
1,2-Dibromo-3-chloropropane		5	< Stated MDL
1,2,4-Trichlorobenzene		5	< Stated MDL
1,2,3-Trichlorobenzene		5	< Stated MDL
Hexachlorobutadiene		5	< Stated MDL
Naphthalene		5	< Stated MDL

Analyst's Initials: AH Reviewed by: chCarol So Chow

Carol So Chow

Laboratory Director

ATHENA  
ANALYTICAL  
LABORATORY, INC.

**ATHENA**  
**ANALYTICAL**  
**LABORATORY, INC.**



8609 West Bryn Mawr

Suite 201

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FAX 312-693-8783

To: Ecology and Environment, Inc.  
6777 Engle Road  
Cleveland, Ohio 44130  
Attention: Emily S. Landis

Report Date: 06/22/95

Date Received: 06/09/95

Analysis Date: 06/12/95

Method: SW-846 8260

Matrix: SOIL

AAL COC Number: 01475

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-004	AA08614		
Dichlorodifluoromethane		5	< Stated MDL
Chloromethane		5	< Stated MDL
Vinyl chloride		5	< Stated MDL
Bromomethane		5	< Stated MDL
Chloroethane		5	< Stated MDL
Trichlorofluoromethane		5	< Stated MDL
1,1-Dichloroethene		5	< Stated MDL
Carbon disulfide		10	< Stated MDL
Methylene chloride		5	< Stated MDL
cis-1,2-Dichloroethene		5	< Stated MDL
Acetone		10	< Stated MDL
1,1-Dichloroethane		5	< Stated MDL
2-Butanone (MEK)		10	< Stated MDL
trans-1,2-Dichloroethene		5	< Stated MDL
Bromochloromethane		5	< Stated MDL
1,2-Dichloroethane		5	< Stated MDL
2,2-Dichloropropane		5	< Stated MDL
Chloroform		5	< Stated MDL
1,1,1-Trichloroethane		5	< Stated MDL

Analyst's Initials: HH

Reviewed by: ch

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-004	AA08614		
1,1-Dichloro-1-propene		5	< Stated MDL
Carbon tetrachloride		5	< Stated MDL
Benzene		5	< Stated MDL
Trichloroethene		5	< Stated MDL
1,2-Dichloropropane		5	< Stated MDL
Bromdichloromethane		5	< Stated MDL
Dibromomethane		5	< Stated MDL
trans-1,3-Dichloropropene		5	< Stated MDL
4-Methyl-2-Pentanone (MIBK)		10	< Stated MDL
cis-1,3-Dichloropropene		5	< Stated MDL
1,1,2-Trichloroethane		5	< Stated MDL
1,3-Dichloropropane		5	< Stated MDL
Chlorodibromomethane		5	< Stated MDL
1,2-Dibromoethane		5	< Stated MDL
Toluene		5	< Stated MDL
2-Hexanone		10	< Stated MDL
Tetrachloroethene		5	< Stated MDL
Chlorobenzene		5	< Stated MDL
Ethylbenzene		5	< Stated MDL
1,1,1,2-Tetrachloroethane		5	< Stated MDL
m,p,-Xylenes		5	< Stated MDL
o-Xylene		5	< Stated MDL
Styrene		5	< Stated MDL
Bromoform		5	< Stated MDL
1,1,2,2-Tetrachloroethane		5	< Stated MDL
1,3,5-Trimethylbenzene		5	< Stated MDL
Isopropylbenzene (Cumene)		5	< Stated MDL
1,2,4-Trimethylbenzene		5	< Stated MDL
1,2,3-Trichloropropane		5	< Stated MDL
Propylbenzene		5	< Stated MDL
Bromobenzene		5	< Stated MDL
tert-Butylbenzene		5	< Stated MDL

Analyst's Initials: AHReviewed by: ch

**ATHENA**  
ANALYTICAL  
LABORATORY, INC.



Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-004	AA08614		
2-Chlorotoluene		5	< Stated MDL
4-Chlorotoluene		5	< Stated MDL
p-Isopropyltoluene (Cymene)		5	< Stated MDL
sec-Butylbenzene		5	< Stated MDL
n-Butylbenzene		5	< Stated MDL
1,3-Dichlorobenzene		5	< Stated MDL
1,4-Dichlorobenzene		5	< Stated MDL
1,2-Dichlorobenzene		5	< Stated MDL
1,2-Dibromo-3-chloropropane		5	< Stated MDL
1,2,4-Trichlorobenzene		5	< Stated MDL
1,2,3-Trichlorobenzene		5	< Stated MDL
Hexachlorobutadiene		5	< Stated MDL
Naphthalene		5	< Stated MDL

Analyst's Initials: AH Reviewed by: chCarol So ChowCarol So Chow  
Laboratory DirectorATHENA  
ANALYTICAL  
LABORATORY, INC.

**ATHENA**  
**ANALYTICAL**  
**LABORATORY, INC.**



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To: Ecology and Environment, Inc.  
6777 Engle Road  
Cleveland, Ohio 44130  
Attention: Emily S. Landis

**Report Date:** 06/22/95

**Date Received:** 06/09/95

**Analysis Date:** 06/12/95

**Method:** SW-846 8260

**Matrix:** SOIL

**AAL COC Number:** 01475

**Project Number:** ZT3051

**Project Name:** T05-9505-806

**P.O. Number:** NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-005	AA08615		
Dichlorodifluoromethane		5	< Stated MDL
Chloromethane		5	< Stated MDL
Vinyl chloride		5	< Stated MDL
Bromomethane		5	< Stated MDL
Chloroethane		5	< Stated MDL
Trichlorofluoromethane		5	< Stated MDL
1,1-Dichloroethene		5	< Stated MDL
Carbon disulfide		10	< Stated MDL
Methylene chloride		5	< Stated MDL
cis-1,2-Dichloroethene		5	< Stated MDL
Acetone		10	< Stated MDL
1,1-Dichloroethane		5	< Stated MDL
2-Butanone (MEK)		10	< Stated MDL
trans-1,2-Dichloroethene		5	< Stated MDL
Bromochloromethane		5	< Stated MDL
1,2-Dichloroethane		5	< Stated MDL
2,2-Dichloropropane		5	< Stated MDL
Chloroform		5	< Stated MDL
1,1,1-Trichloroethane		5	< Stated MDL

Analyst's Initials: fit

Reviewed by: ch



Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-005	AA08615		
1,1-Dichloro-1-propene		5	< Stated MDL
Carbon tetrachloride		5	< Stated MDL
Benzene		5	< Stated MDL
Trichloroethene		5	< Stated MDL
1,2-Dichloropropane		5	< Stated MDL
Bromdichloromethane		5	< Stated MDL
Dibromomethane		5	< Stated MDL
trans-1,3-Dichloropropene		5	< Stated MDL
4-Methyl-2-Pentanone (MIBK)		10	< Stated MDL
cis-1,3-Dichloropropene		5	< Stated MDL
1,1,2-Trichloroethane		5	< Stated MDL
1,3-Dichloropropane		5	< Stated MDL
Chlorodibromomethane		5	< Stated MDL
1,2-Dibromoethane		5	< Stated MDL
Toluene		5	< Stated MDL
2-Hexanone		10	< Stated MDL
Tetrachloroethene		5	< Stated MDL
Chlorobenzene		5	< Stated MDL
Ethylbenzene		5	< Stated MDL
1,1,1,2-Tetrachloroethane		5	< Stated MDL
m,p,-Xylenes		5	< Stated MDL
o-Xylene		5	< Stated MDL
Styrene		5	< Stated MDL
Bromoform		5	< Stated MDL
1,1,2,2-Tetrachloroethane		5	< Stated MDL
1,3,5-Trimethylbenzene		5	< Stated MDL
Isopropylbenzene (Cumene)		5	< Stated MDL
1,2,4-Trimethylbenzene		5	< Stated MDL
1,2,3-Trichloropropane		5	< Stated MDL
Propylbenzene		5	< Stated MDL
Bromobenzene		5	< Stated MDL
tert-Butylbenzene		5	< Stated MDL

Analyst's Initials: AMReviewed by: ch

**ATHENA**  
ANALYTICAL  
LABORATORY, INC.



Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-005	AA08615		
2-Chlorotoluene		5	< Stated MDL
4-Chlorotoluene		5	< Stated MDL
p-Isopropyltoluene (Cymene)		5	< Stated MDL
sec-Butylbenzene		5	< Stated MDL
n-Butylbenzene		5	< Stated MDL
1,3-Dichlorobenzene		5	< Stated MDL
1,4-Dichlorobenzene		5	< Stated MDL
1,2-Dichlorobenzene		5	< Stated MDL
1,2-Dibromo-3-chloropropane		5	< Stated MDL
1,2,4-Trichlorobenzene		5	< Stated MDL
1,2,3-Trichlorobenzene		5	< Stated MDL
Hexachlorobutadiene		5	< Stated MDL
Naphthalene		5	< Stated MDL

Analyst's Initials: AH Reviewed by: chCarol So ChowCarol So Chow  
Laboratory DirectorATHENA  
ANALYTICAL  
LABORATORY, INC.

**ATHENA**  
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8609 West Bryn Mawr  
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PHONE 312-693-8030  
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To: Ecology and Environment, Inc.  
6777 Engle Road  
Cleveland, Ohio 44130  
Attention: Emily S. Landis

Report Date: 06/22/95  
Date Received: 06/09/95  
Analysis Date: 06/12/95  
Method: SW-846 8260  
Matrix: SOIL  
AAL COC Number: 01475

Project Number: ZT3051  
Project Name: T05-9505-806  
P.O. Number: NA

*all MDL's flagged  
8-2-95*

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-006	AA08616		
Dichlorodifluoromethane		5	< Stated MDL
Chloromethane		5	< Stated MDL
Vinyl chloride		5	< Stated MDL
Bromomethane		5	< Stated MDL
Chloroethane		5	< Stated MDL
Trichlorofluoromethane		5	< Stated MDL
1,1-Dichloroethene		5	< Stated MDL
Carbon disulfide		10	< Stated MDL
Methylene chloride		5	< Stated MDL
cis-1,2-Dichloroethene		5	< Stated MDL
Acetone		10	< Stated MDL
1,1-Dichloroethane		5	< Stated MDL
2-Butanone (MEK)		10	< Stated MDL
trans-1,2-Dichloroethene		5	< Stated MDL
Bromochloromethane		5	< Stated MDL
1,2-Dichloroethane		5	< Stated MDL
2,2-Dichloropropane		5	< Stated MDL
Chloroform		5	< Stated MDL
1,1,1-Trichloroethane		5	< Stated MDL

Analyst's Initials: AH Reviewed by: sh

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

*see MDL's flagged  
use 8.2.95*

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-006	AA08616		
1,1-Dichloro-1-propene		5	< Stated MDL
Carbon tetrachloride		5	< Stated MDL
Benzene		5	< Stated MDL
Trichloroethene		5	< Stated MDL
1,2-Dichloropropane		5	< Stated MDL
Bromdichloromethane		5	< Stated MDL
Dibromomethane		5	< Stated MDL
trans-1,3-Dichloropropene		5	< Stated MDL
4-Methyl-2-Pentanone (MIBK)		10	< Stated MDL
cis-1,3-Dichloropropene		5	< Stated MDL
1,1,2-Trichloroethane		5	< Stated MDL
1,3-Dichloropropane		5	< Stated MDL
Chlorodibromomethane		5	< Stated MDL
1,2-Dibromoethane		5	< Stated MDL
Toluene		5	< Stated MDL
2-Hexanone		10	< Stated MDL
Tetrachloroethene		5	< Stated MDL
Chlorobenzene		5	< Stated MDL
Ethylbenzene		5	< Stated MDL
1,1,1,2-Tetrachloroethane		5	< Stated MDL
m,p,-Xylenes		5	< Stated MDL
o-Xylene		5	< Stated MDL
Styrene		5	< Stated MDL
Bromoform		5	< Stated MDL
1,1,2,2-Tetrachloroethane		5	< Stated MDL
1,3,5-Trimethylbenzene		5	< Stated MDL
Isopropylbenzene (Cumene)		5	< Stated MDL
1,2,4-Trimethylbenzene		5	< Stated MDL
1,2,3-Trichloropropane		5	< Stated MDL
Propylbenzene		5	< Stated MDL
Bromobenzene		5	< Stated MDL
tert-Butylbenzene		5	< Stated MDL

Analyst's Initials: AllReviewed by: ch

**ATHENA**  
ANALYTICAL  
LABORATORY, INC.



Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

*all MDL's flooded  
last 8-2-95*

Customer Number	AAL Number	MDL's (ug/Kg)	Results (ug/Kg)
S-006	AA08616		
2-Chlorotoluene		5	< Stated MDL
4-Chlorotoluene		5	< Stated MDL
p-Isopropyltoluene (Cymene)		5	< Stated MDL
sec-Butylbenzene		5	< Stated MDL
n-Butylbenzene		5	< Stated MDL
1,3-Dichlorobenzene		5	< Stated MDL
1,4-Dichlorobenzene		5	< Stated MDL
1,2-Dichlorobenzene		5	< Stated MDL
1,2-Dibromo-3-chloropropane		5	< Stated MDL
1,2,4-Trichlorobenzene		5	< Stated MDL
1,2,3-Trichlorobenzene		5	< Stated MDL
Hexachlorobutadiene		5	< Stated MDL
Naphthalene		5	< Stated MDL

Analyst's Initials: AH Reviewed by: chCarol So ChowCarol So Chow  
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# ecology and environment, inc.

International Specialists in the Environment

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## MEMORANDUM

DATE: July 28, 1995

TO: John Sherrard, TAT Project Manager, E & E, Chicago, Illinois

FROM: Emily S. Landis, TAT Geochemist, E & E, Cleveland, Ohio

THROUGH: Anne A. Busher, ATATL, E & E, Cleveland, Ohio  
David Hendren, TAT Analytical Services Manager, E & E, Chicago, Illinois  
Mary J. Ripp, TAT QA Reports Manager, E & E, Chicago, Illinois

SUBJECT: Priority Pollutant List Metals and Toxicity Characteristic Leaching Procedure (TCLP) Lead Data Quality Assurance Review, International Harvester/Dutch Boy, Chicago, Cook County, Illinois

REFERENCE: Project TDD T05-9505-011 Analytical TDD T05-9505-806  
Project PAN EIL0607VBA Analytical PAN EIL0607ACA

The data quality assurance (QA) review of 11 discrete soil samples, collected from the International Harvester/Dutch Boy site, is complete. The samples were collected on June 1 and 8, 1995, by the Technical Assistance Team (TAT) contractor, Ecology and Environment, Inc. (E & E). The samples were submitted to Athena Analytical Laboratory, Inc. (AAL), Chicago, Illinois, for analysis. The laboratory analyses were performed according to the United States Environmental Protection Agency (U.S. EPA) Solid Waste (SW)-846 Methods 6010, 7060 (arsenic), 7740 (selenium), and 7471 (mercury) for the determination of Priority Pollutant List metals. Five samples were also subjected to the TCLP, Method 1311, prior to analysis for lead (Method 6010). Results for the soil samples were reported on a dry-weight basis.

### Sample Identification

<u>TAT</u> <u>Identification No.</u>	<u>Laboratory</u> <u>Identification No.</u>
S-1	AA08582
S-2	AA08583
S-3	AA08584
S-4	AA08585
S-5	AA08586
S-001	AA08611
S-002	AA08612
S-003	AA08613
S-004	AA08614
S-005	AA08615
S-006	AA08616

## Data Qualifications

### I. Sample Holding Times: Acceptable

Samples S-1 through S-5 were digested according to SW-846 Method 3051 on June 13, 1995; Samples S-001 through S-006 were digested on June 19, 1995. The samples were analyzed by inductively coupled plasma spectrometry (ICP), by graphite furnace atomic absorption (GFAA), and cold vapor atomic absorption (CVAA) spectroscopy. The laboratory met the six-month holding time limit for metals.

Samples S-002 through S-006 were extracted following the TCLP on June 30, 1995, and analyzed for lead on July 7, 1995.

GFAA and CVAA analyses were completed by a subcontracted laboratory, American Environmental Analytical, Inc. (AEA), Lincolnwood, Illinois, on June 20, 1995.

### II. Initial and Continuing Calibration Verification: Qualified

Calibration standards and blanks were analyzed at the beginning of the analysis and after every 10 samples, as required, for all methods. Samples with results 110 percent or greater than the highest calibration standard were diluted and reanalyzed.

The ICP standard values were within the range of 90 to 110 percent of their mean values. All calibrations associated with the TCLP analyses were also acceptable.

The GFAA initial calibration curve for selenium had a correlation coefficient less than the method-required 0.995. The arsenic initial calibration was acceptable; however, check standard values consistently exceeded the 90 to 110 percent range. Sample values for selenium and arsenic are qualified as estimated values based on inadequate instrument calibration.

The correlation coefficient for the CVAA initial calibration curve was much less than the method requirement of 0.995; therefore, sample results for mercury are also qualified as estimated values.

These analyses were repeated by the laboratory and yielded similar results.

### III. Blanks: Acceptable

Method blanks were prepared and analyzed with each sample batch, as required. Percent recovery for silver in the spiked method blank was below the quality control limit. Analyte concentrations were below method detection limits (MDLs) in the ICP calibration and method blanks. Results for GFAA or CVAA blanks were not recorded.

### IV. ICP Interference Check Samples: Acceptable

Interference check sample (ICS) results indicated severe spectral interferences for the major beryllium and thallium lines. These elements were quantitated using secondary lines, for which ICS results were acceptable.

V. Analytical Error: Precision and Bias Not Determined

Percent recoveries for silver were low, but no action is required based on the results of one matrix spike sample.

VI. Quantitation and Reported Detection Limits: Acceptable

The reported values and detection limits reflect appropriate dilution factors. Sample results were reported on a dry-weight basis.

VII. Overall Assessment of Data: Qualified

This data evaluation is based on criteria established in the Office of Solid Waste and Emergency Response (OSWER) Directive 9360.4-01, Quality Assurance/Quality Control Guidance for Removal Activities, (1990), and U.S. EPA SW-846 Methods listed above. Based on the data provided, the results may be used with the exceptions noted.

Data Validation Qualifiers

- J - The associated numerical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control criteria were not met.



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FAX 312-693-8783

**To:** Ecology and Environment, Inc.  
6777 Engle Road  
Cleveland, Ohio 44130  
Attention: Emily S. Landis

**Report Date:** 06/23/95  
**Date Received:** 05/09/95  
**Analysis Date:** 06/12/95  
**Method:**  
**Matrix:** SOIL  
**AAL COC Number:** 01475

**Project Number:** ZT3051

**Project Name:** T05-9505-806

**P.O. Number:** NA

Customer Number	AAL Number	MDL's (mg/Kg)	Result (mg/Kg)
S-001	AA08611	7.17	8.00
Antimony		0.129	32.3
Arsenic		0.239	1.46
Beryllium		4.78	< Stated MDL
Cadmium		4.78	39.5
Chromium		4.78	141
Copper		6.21	21200
Lead		7.17	31.0
Nickel		0.129	15.5
Selenium			

Analyst's Initials: CH

Reviewed by: hr

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-001	AA08611	1.19	< Stated MDL
Silver		7.17	< Stated MDL
Thallium		7.17	692
Zinc		0.001	0.404
Mercury			

S-002	AA08612	6.44	< Stated MDL
Antimony		0.120	2.19
Arsenic		0.215	1.20
Beryllium		4.30	< Stated MDL
Cadmium		4.30	185
Chromium		4.30	58.1
Copper		5.59	1180
Lead			

Analyst's Initials: CH Reviewed by: shATHENA  
ANALYTICAL  
LABORATORY, INC.


Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-002	AA08612	6.44	15.3
Nickel		0.120	11.1
Selenium		1.07	< Stated MDL
Silver		6.44	< Stated MDL
Thallium		6.44	501
Zinc		0.001	0.350
Mercury			

S-003	AA08613	6.52	< Stated MDL
Antimony		0.125	7.53
Arsenic		0.217	0.565
Beryllium		4.35	< Stated MDL
Cadmium		4.35	12.0
Chromium			

Analyst's Initials: CHReviewed by: 

**ATHENA**  
**ANALYTICAL**  
**LABORATORY, INC.**



Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-003	AA08613	4.35	9.00
Copper		5.65	1540
Lead		6.52	6.71
Nickel		0.125	2.13
Selenium		1.09	< Stated MDL
Silver		6.52	< Stated MDL
Thallium		6.52	36.4
Zinc		0.001	0.120
Mercury			
S-004	AA08614	7.28	9.64
Antimony		0.126	13.9
Arsenic		0.243	1.09
Beryllium			

Analyst's Initials: CH Reviewed by: lnATHENA  
ANALYTICAL  
LABORATORY, INC.

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-004	AA08614	4.85	< Stated MDL
Cadmium		4.85	28.8
Chromium		4.85	40.1
Copper		6.31	2450
Lead		7.28	19.3
Nickel		0.126	4.80
Selenium		1.21	< Stated MDL
Silver		7.28	< Stated MDL
Thallium		7.28	245
Zinc		0.001	1.66
Mercury			
S-005	AA08615	6.97	31.1
Antimony		0.117	22.1
Arsenic			

Analyst's Initials: CM Reviewed by: chATHENA  
ANALYTICAL  
LABORATORY, INC.

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-005	AA08615	0.232	1.05
Beryllium		4.65	< Stated MDL
Cadmium		4.65	32.8
Chromium		4.65	120
Copper		6.04	6820
Lead		6.97	26.7
Nickel		0.117	8.51
Selenium		1.16	< Stated MDL
Silver		6.97	< Stated MDL
Thallium		6.97	319
Zinc		0.001	0.291
Mercury			

S-006

AA08616

Analyst's Initials: CH Reviewed by:   ATHENA  
ANALYTICAL  
LABORATORY, INC.

Project Number: ZT3051

Project Name: T05-9505-806

P.O. Number: NA

Customer Number	AAL Number	MDL's (mg/Kg)	Results (mg/Kg)
S-006	AA08616	7.07	52.9
Antimony		0.126	22.7
Arsenic		0.236	0.778
Beryllium		4.72	< Stated MDL
Cadmium		4.72	19.0
Chromium		4.72	70.6
Copper		6.13	31700
Lead		7.07	22.7
Nickel		0.126	11.5
Selenium		1.18	< Stated MDL
Silver		7.07	< Stated MDL
Thallium		7.07	32
Zinc		0.001	0.210
Mercury			

Analyst's Initials: CH Reviewed by: hCarol So ChowCarol So Chow  
Laboratory DirectorATHENA  
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**ATHENA**  
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To: Ecology and Environment, Inc.  
6777 Engle Road  
Cleveland, Ohio 44130  
Attention: Emily S. Landis

**Report Date:** 07/07/95

**Date Received:** 06/09/95

**Analysis Date:** 06/12/95

**Matrix:** SOIL

**AAL COC Number:** 01475

**Project Number:** ZT3051

**Project Name:** T05-9505-806

**P.O. Number:** NA

Customer Number	AAL Number	MDLs (mg/L)	Results (mg/L)
S-002	AA08612		
LEAD, TCLP		0.027	3.
S-003	AA08613		
LEAD, TCLP		0.027	2.46
S-004	AA08614		
LEAD, TCLP		0.027	3.70
S-005	AA08615		
LEAD, TCLP		0.027	10.9
S-006	AA08616		
LEAD, TCLP		0.027	3.1

Analyst's Initials: CH Reviewed by: ch

Carol So Chow

Carol So Chow  
Laboratory Director